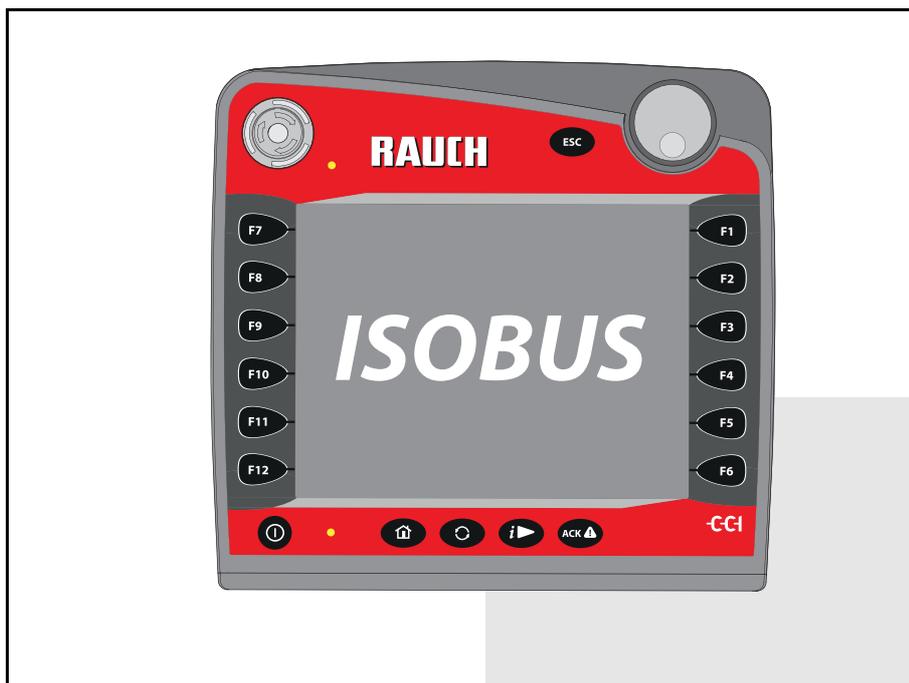


RAUCH

wir nehmen's genau

INSTRUCTION MANUAL



**Please read carefully
before using the ma-
chine.**

Keep for future reference.

This instruction manual/assembly instruction is to be considered as part of the machine. Suppliers of new and second-hand machines are required to document in writing that the instruction manual/assembly instruction was delivered with the machine and handed over to the customer.

AXIS ISOBUS

Version 3.20.00

Original instructions

5901200-d-en-0818

Preface

Dear Customer,

By purchasing the **machine control unit** AXIS ISOBUS for the mineral fertiliser spreader AXIS-M, you have shown confidence in our product. Thank you! We would like to justify this confidence. You have purchased a powerful and reliable **machine control unit**. If, contrary to expectations, any problems occur: Our customer service team are always there for you.



Please read this operating manual as well as the operating manual of the machine carefully before commissioning and follow the advice given.

This manual may also describe equipment that is not included in your **machine control unit**.

Please note that damage caused by incorrect operation or improper use may not be covered by warranty claims.

NOTE

Note the serial number of the machine control unit and of the machine

The machine control unit AXIS ISOBUS has been calibrated at the factory for the mineral fertiliser spreader with which it was supplied. It cannot be connected to a different machine without additional recalibration.

Please enter the serial number of the machine control unit and of the machine here. When connecting the machine control unit to the machine, these numbers must be checked.

Serial number AXIS ISOBUS

Serial number AXIS-M

Year of construction
AXIS-M

Technical improvements

We are continuously improving our products. Therefore, we reserve the right to make any improvements and changes to our machine that we consider necessary without notice. This constitutes no obligation to make such improvements or changes on machines that have already been sold.

We will be pleased to answer any other questions that you might have.

Yours sincerely

RAUCH

Landmaschinenfabrik GmbH

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1 User instructions

1.1 About this operator's manual

This operator's manual is an **integral part** of the machine control unit .

The operator's manual contains important instructions for the **safe, proper and economic use** and **maintenance** of the machine control unit. Compliance with it helps to **avoid danger**, reduce maintenance costs and downtime and to increase the machine's reliability and service life.

The operator's manual is an integral part of the machine. The complete documentation must be kept in an easily accessible location close to where the machine control unit is used (e.g. on the tractor).

The operating manual does not replace your **own responsibility** as the operator and operating personnel of the machine control unit.

1.2 Presentation information

1.2.1 Significance of warnings

The warning instructions in this manual have been structured according to the degree of danger and the probability of their occurrence.

Danger signs and symbols inform the user about other construction-related and unavoidable residual risks that may be encountered when operating the machine. The warning notes used are structured as follows:

Signal word	
Symbol	Explanation
Example	
⚠ DANGER	
	<p>Risk to life if warning is not observed</p> <p>Description of the danger and possible consequences.</p> <p>Ignoring these warnings will result in very serious or even fatal injury.</p> <p>► Measures to prevent the danger.</p>

Warning severity level

The degree of danger is indicated by the signal word. The levels are classified as follows:

⚠ DANGER



Type and source of danger

This warning warns of a danger posing an immediate threat to the health and life of persons.

Ignoring these warnings will result in very serious or even fatal injury.

- ▶ Always observe the measures described to prevent this danger.

⚠ WARNING



Type and source of danger

This warning warns of a possible dangerous situation for the health of persons.

Ignoring these warnings will result in very serious injury.

- ▶ Always observe the measures described to prevent this danger.

⚠ CAUTION



Type and source of danger

This warning warns of a potentially dangerous situation for personal health or of material and environmental damage.

Ignoring this warning can result in injuries and damage to the product or the general area.

- ▶ Always observe the measures described to prevent this danger.

NOTICE

General information containing application tips and particularly useful information, but which constitutes neither warnings nor hazards.

1.2.2 Instructions and procedures

Steps that the operator must carry out are shown as a numbered list.

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

Instructions involving only one step are not numbered. The same applies for action steps that do not have a specific sequence.

A bullet is placed in front of these instructions:

- Handling instruction

1.2.3 Listings

Listings without a specific sequence are shown with bullet points (level 1) and dashes (level 2):

- Property A
 - Point A
 - Point B
- Property B

1.2.4 References

References to other text passages in the document are indicated with section number, headline text and page number:

- **Example:** See also Chapter [3: Safety, page 5](#).

References to other documents are indicated as note or instruction without exact chapter or page number:

- **Example:** Please also observe the instructions contained in the manual for the universal drive shaft.

1.2.5 Menu hierarchy, keys and navigation

Menus are the entries listed in the **Main menu** window.

In the menus, **submenus and/or menu items** are listed in which settings can be implemented (selection lists, text or number entries, starting a function).

The various menus and buttons of the machine control unit are illustrated in **bold** letters:

The hierarchy and the path to the requested menu item are marked with an > (arrow) between menu, menu item/s:

- **System / test > Test/diagnosis > Voltage** means that you can access the **Voltage** menu item via the **System / test** menu and the **Test/diagnosis** menu item.
 - The arrow > corresponds to the operation of the **scroll wheel** and/or the button at the screen (touch screen).

2 Structure and function

NOTICE

Due to the great variety of different ISOBUS-compatible terminals, this chapter is restricted to the functions of the electronic machine control system without indicating a specific ISOBUS terminal.

- Please observe the instructions on the operation of your ISOBUS terminal in the corresponding operating manual.

2.1 Overview of supported AXIS fertiliser spreaders

Fertiliser spreader type	AXIS M 30.2 EMC AXIS M 40.2 EMC	AXIS M 30.2 EMC + W AXIS M 40.2 EMC	AXIS M 30.1/40.1 W	AXIS M 30.2/40.2 W	AXIS M 50.1/50.2 W
Weigh cells		•	•	•	•
Electrical drop point setting	•	•		•	•
Mass flow control by measuring the torque of the spreading discs	•	•			
Mass flow control by measuring the weight reduction			•	•	•

2.2 Display

The current status information as well as the selection and input options for the machine control unit are displayed.

The most important information concerning the operation of the mineral fertiliser spreader is displayed in the **operating screen**.

2.2.1 Description of the operating screen

NOTICE

The exact representation of the operating screen depends on the actual settings selected.

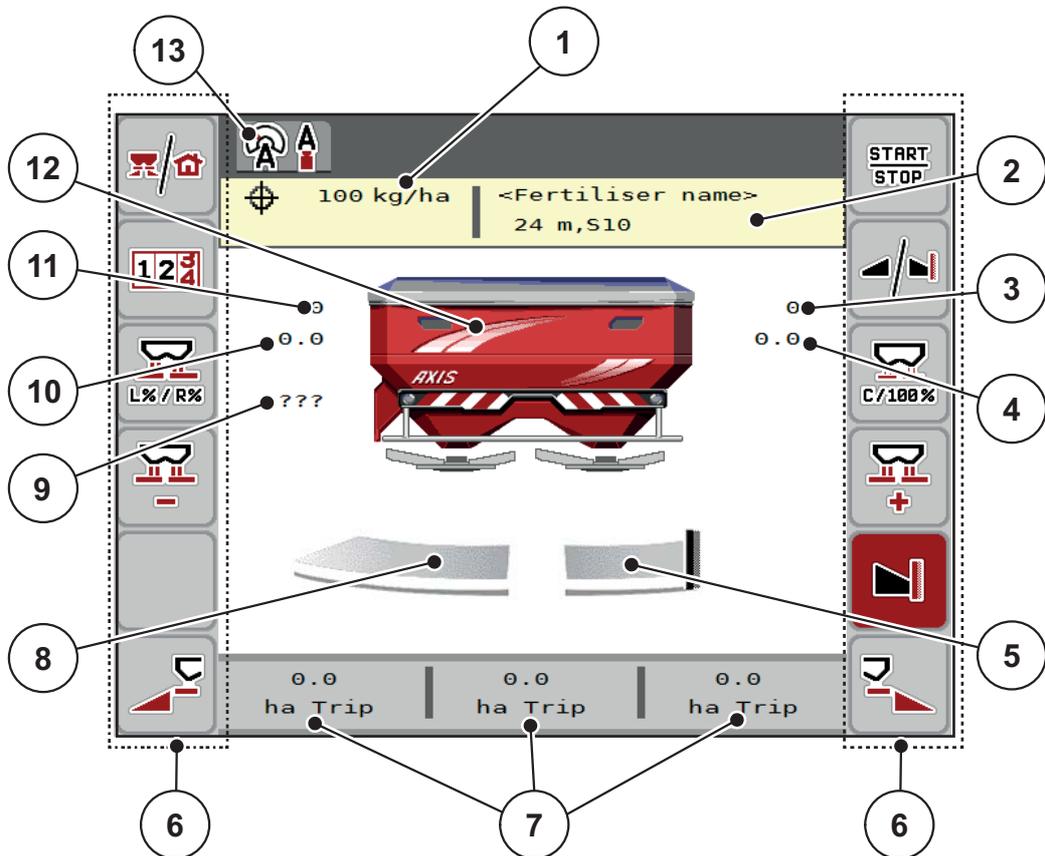


Figure 2.1: Machine control unit display

- [1] Current application rate from the fertiliser settings or the task controller
Button: direct entry of the application rate
- [2] Fertiliser information display (fertiliser name, working width and spreading disc type)
Button: Adjustment in the fertiliser chart
- [3] Metering slide position, right
- [4] Position of the drop point on the right - M EMC
- [5] Metering slide opening status, right
- [6] Function keys
- [7] Freely definable display fields
- [8] Metering slide opening status, left
- [9] PTO speed
- [10] Position of the drop point on the left - M EMC
- [11] Metering slide position, left
- [12] Mineral fertiliser spreader display
- [13] Selected operating mode

2.2.2 Display fields

The three display fields in the operating screen ([Figure 2.1](#), Position [7]) can be individually adjusted and optionally assigned with the following values:

- Forward speed
- Flow factor (FF)
- ha trip
- kg trip
- m trip
- residual kg
- m left
- ha left
- Idling time (time until the next idle measurement; only with M EMC function)

Select display

1. Press the corresponding **display field** in the touch screen.
Or: Select the **display field** with the scroll wheel and press the scroll wheel.
 - ▷ The available options are displayed in a list.
2. Select the new value to be assigned to the display field.
3. Press the **OK** button or the **scroll wheel**.
 - ▷ The **operating screen** is displayed. The respective **display field** displays the new value.

2.2.3 Display of the metering slide states

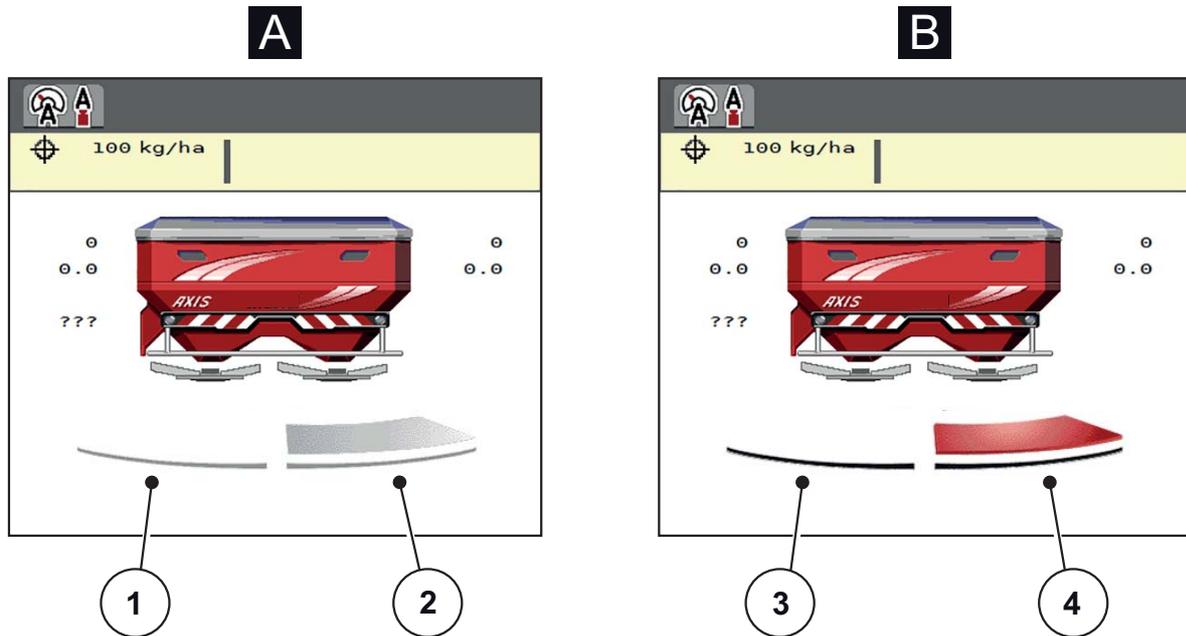


Figure 2.2: Display of the metering slide states

[A] Spreading operation inactive (STOP)

[1] Spreading side disabled

[2] Spreading side active

[B] Machine in spreading operation (START)

[3] Spreading side disabled

[4] Spreading side active

2.2.4 Display of sections

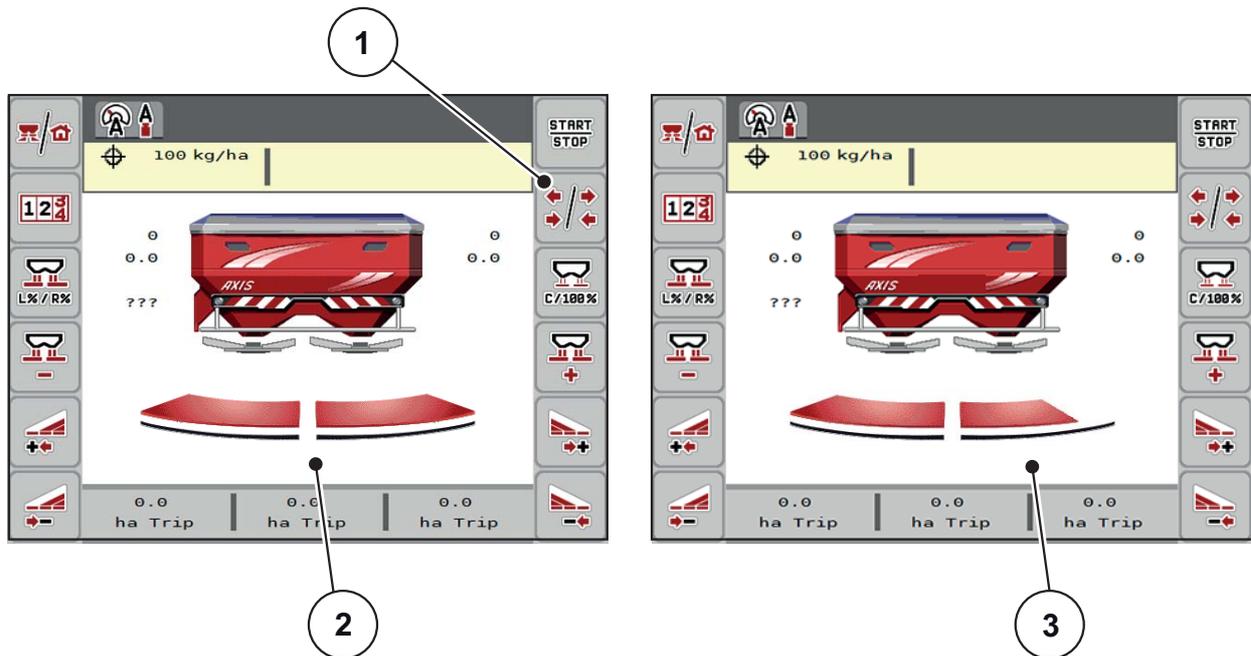


Figure 2.3: Display of the section states

- [1] Section/boundary spreading toggle key
- [2] Activated sections with 4 possible section steps
- [3] The right section is reduced by 2 section steps.

Further display and setting options are explained in chapter [5.3: Working with sections, page 76](#).

2.3 Library of symbols used

The AXIS ISOBUS machine control unit displays symbols for the individual menus and functions.

2.3.1 Navigation

Symbol	Meaning
	Go to the left; previous page
	Go to the right; next page
	Back to the previous menu
	Back to main menu
	Change between operating screen and menu window
	Acknowledgement of error messages
	Cancel, close the dialogue window

2.3.2 Menus

Symbol	Meaning
	Switch from a menu window directly to the main menu.
	Change between operating screen and menu window
	Fertiliser settings
	Machine settings
	Fast emptying
	System/test
	Information
	Weighing trip counter

2.3.3 Operating screen symbols

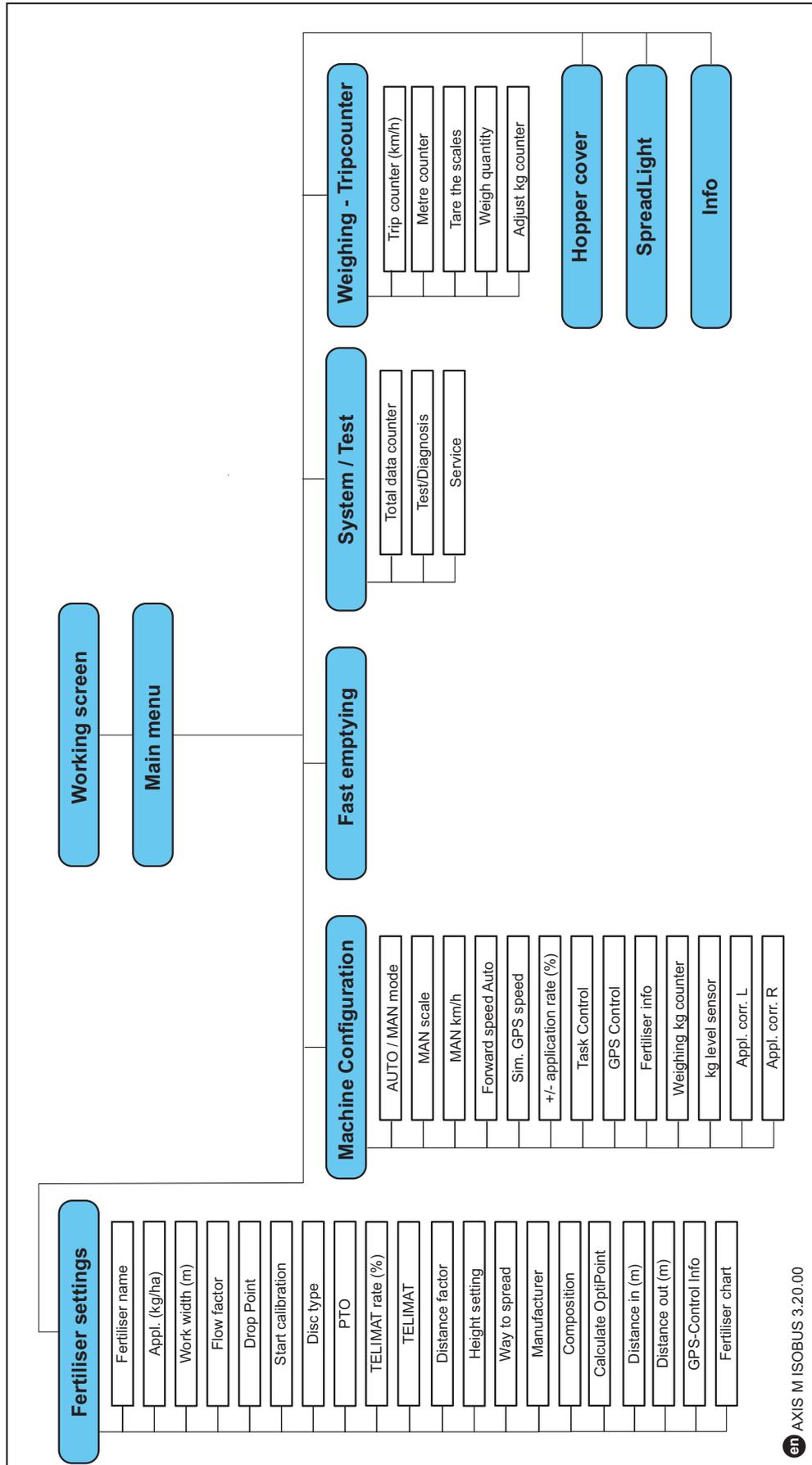
Symbol	Meaning
	Start/stop application rate regulation.
	The spreading operation has started; stop the application rate regulation.
	Reset the quantity adjustment to the pre-set application rate.
	Change between operating screen and menu window
	Selection of the surplus/shortage quantity on the left, right or both spreading sides (%)
	Section/limited border spreading toggle key Activate sections on both spreading sides.
	Sections possible on the left spreading side, limited border spreading possible on the right spreading side.
	Normal spreading on the left spreading side, sections on the right spreading side.
	Normal spreading possible on the left spreading side, limited border spreading possible on the right spreading side.
	Left spreading side active
	Left spreading side inactive
	Right spreading side active

Symbol	Meaning
	Right spreading side inactive
	Quantity adjustment + (plus)
	Quantity adjustment - (minus)
	Enlarge metering slide opening (plus)
	Reduce metering slide opening (minus)
	Reduce right section (minus)
	Increase right section (plus)
	TELIMAT function
	Changing to the Weighing trip counter menu

2.3.4 Other symbols

Symbol	Meaning
	Start idle measurement, in the main menu
	Operating mode AUTO km/h + AUTO kg
	Operating mode AUTO km/h
	Operating mode MAN km/h
	Operating mode MAN scale
	Loss of GPS signal
	M EMC system fault Mass flow control is not possible

2.4 Structural menu overview



3 Attachment and installation

3.1 Tractor requirements

Before installing the electronic machine control unit, ensure that your tractor meets the following requirements:

- A minimum voltage of **11V** must **always** be guaranteed, even if multiple loads are connected simultaneously (e.g. air conditioning system, lights).
- The PTO speed can be adjusted to **750 rpm** and must be adhered to (basic requirement for correct working width).

NOTICE

On tractors without load-switchable transmission, the forward speed must be selected by using the correct gear ratio in such a way that it corresponds to a PTO speed of **750 rpm**.

- 9-pin socket (ISO 11783) located at the rear of the tractor for connecting the machine control unit with the ISOBUS.
- 9-pin terminal plug (ISO 11783) for connecting an ISOBUS terminal to the ISOBUS.

NOTICE

If the tractor is not equipped with a 9-pin socket at the rear, a tractor assembly set including a 9-pin socket for the tractor (ISO 11783) and a forward speed sensor may be purchased additionally as special equipment.

3.2 Connections, sockets

NOTICE

If the terminal is to be connected to already existing ISOBUS basic equipment, its compatibility with **the international standard ISO 11783** "Tractors and machinery for agriculture and forestry - Serial control and communications data network" is to be checked in advance.

NOTICE

For details on the connection of the terminal, please refer to the operating manual of the terminal manufacturer.

3.2.1 Power supply

The power supply of the electronic machine control unit is implemented via the 9-pin socket at the rear of the tractor.

3.2.2 ISOBUS terminal connection

Depending on the equipment, there are different methods for connecting the ISOBUS terminal to the mineral fertiliser spreader.

NOTICE

Observe the supplied operating manual of the terminal.

Proceed in the following order.

- Select a suitable position in the tractor cabin (within **the driver's field of vision**) to fix the ISOBUS terminal.
- Attach the ISOBUS terminal with the **bracket** in the tractor cabin.

3.2.3 Schematic connection diagram

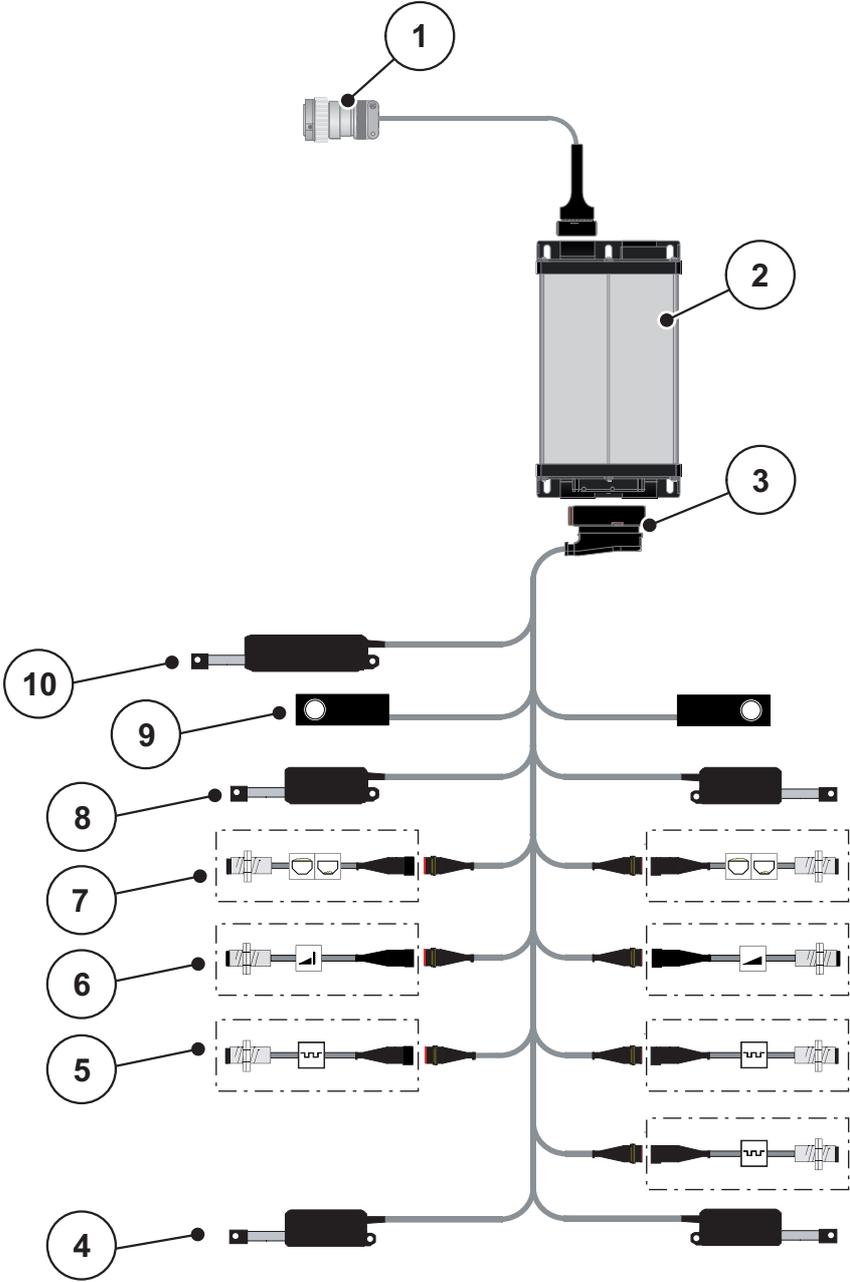


Figure 3.1: Schematic connection diagram

- [1] ISOBUS connector plug
- [2] Machine control unit
- [3] Machine plug
- [4] Drop point actuator (2 actuators for AXIS.2 and M EMC machines)
- [5] M EMC sensors (left, right, centre)
- [6] TELIMAT sensor AXIS top/bottom
- [7] Level sensor left/right
- [8] Metering slide actuator left/right
- [9] Weigh cell left/right
- [10] TELIMAT actuator

3.3 Metering slide preparation

The AXIS-M W mineral fertiliser spreaders are equipped with an electronic metering slide actuator for application rate adjustment.

⚠ CAUTION



Property damages caused by incorrect positioning of the metering slide

Operation of the actuators by the AXIS ISOBUS can cause damage to the metering slides if the stop levers are incorrectly positioned.

- ▶ Always clamp the stop levers at the **maximum** scale position.

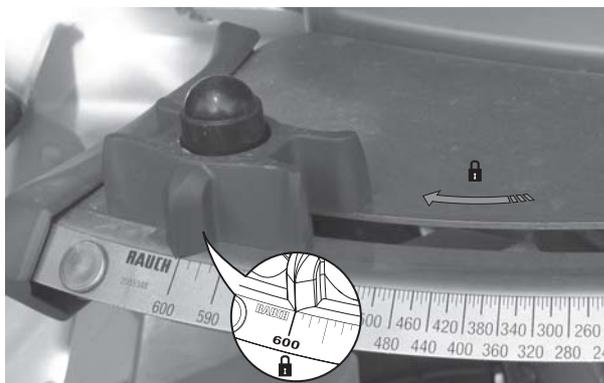


Figure 3.2: Metering slide preparation (example)

NOTICE

Observe the operating manual of the fertiliser spreader.

4 Operation AXIS ISOBUS

⚠ CAUTION



Risk of injury due to ejected fertiliser

In the case of a fault, the metering slides can open unexpectedly during road transport to the spreading location. There is a risk of slipping and personal injury due to ejected fertiliser.

- ▶ **Before leaving for the place of spreading**, the electronic machine control unit AXIS ISOBUS must always be switched off.

NOTICE

The operating manual describes the functions of the machine control unit AXIS ISOBUS **as of software version 3.20.00**.

NOTICE

The settings in each menu are very important for optimal **automatic mass flow control (M EMC function)**.

Please be particularly aware of the specifics of the M EMC function for the following menu items:

- in the **Fertiliser settings** menu
 - Spreading disc. See [Page 50](#).
 - PTO speed. See [Page 50](#).
- In the **Machine settings** menu
 - AUTO / MAN mode. See [Page 51](#) and chapter [\[5\]](#).

4.1 Switching the machine control unit on

Requirements:

- The machine control unit is properly connected to the mineral fertiliser spreader and the tractor (an example is provided in chapter [3.2.2: ISOBUS terminal connection, page 18](#)).
- A minimum voltage of **11V** is guaranteed.

1. Start the machine control unit.

- ▷ After a few seconds, the **start-up screen** of the machine control unit is displayed.
- ▷ Shortly after, the machine control unit displays the **Activation menu** for a few seconds.

2. Press the **Enter** key.

- ▷ **Then the operating screen is displayed.**



4.2 Menu navigation

NOTICE

Please refer to chapter [1.2.5: Menu hierarchy, keys and navigation, page 3](#) for important notes regarding the display and navigation between menus.

In the following, accessing menus and menu items **by touching the touch screen or pressing the function keys** is described.

- Observe the operating manual of the applied terminal.
-

Accessing the main menu



- Press the **operating screen/main menu** function key. See [2.3.2: Menus, page 11](#).
 - ▷ The main menu is displayed.

Accessing the sub-menu with the touch screen:

1. Press the button of the desired sub-menu.

Windows appear prompting various actions.

- Text input
- Value input
- Settings made in further sub-menus

NOTICE

Not all parameters are displayed simultaneously in one menu window. Use the **left/right arrow keys** to switch to the next or previous window.

Exiting menus



- Confirm settings by pressing the **back** key.
 - ▷ The **previous menu** is displayed.
- Press the **operating screen/main menu** key.
 - ▷ You will return to the **operating screen**.
- Press the **ESC** key.
 - ▷ The previous settings are maintained.
 - ▷ You will return to the **previous menu**.

4.3 Main menu

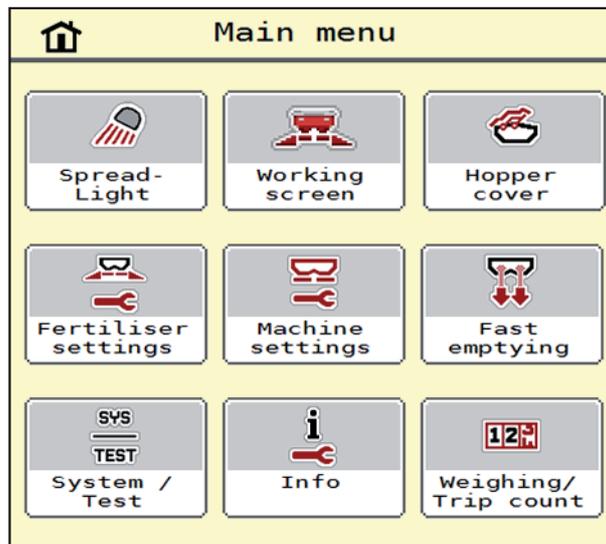


Figure 4.1: Main menu AXIS ISOBUS

The main menu displays the following sub-menus.

Sub-menu	Meaning	Description
SpreadLight	Activation/deactivation of the operating lights	Page 67
Working screen	Switches to the operating screen.	
Hopper cover	Open/close the hopper cover	Page 68
Fertiliser settings	Fertiliser and spreader operation settings	Page 24
Machine settings	Tractor and mineral fertiliser spreader settings	Page 39
Fast emptying	Direct access to the menu for fast emptying of the mineral fertiliser spreader	Page 52
System / test	Settings and diagnosis of the machine control unit	Page 54
Information	Display of machine configuration	Page 58
Weighing/Trip counter	Values of the implemented spreading work and functions for weighing operation	Page 59



In addition to the sub-menus, in the **Main menu** the **Idle measurement** and **Boundary spreading type** function keys can be selected.

This function key enables a manual start of the idle measurement. See [5.4.2: Mass flow control with the M EMC function, page 82](#)



For terminals with 2x5 function keys, the shortage quantity button appears under the main menu.

4.4 Fertiliser settings



In this menu, the fertiliser and spreading operation settings can be changed.

- Open the **Main menu > Fertiliser settings** menu.

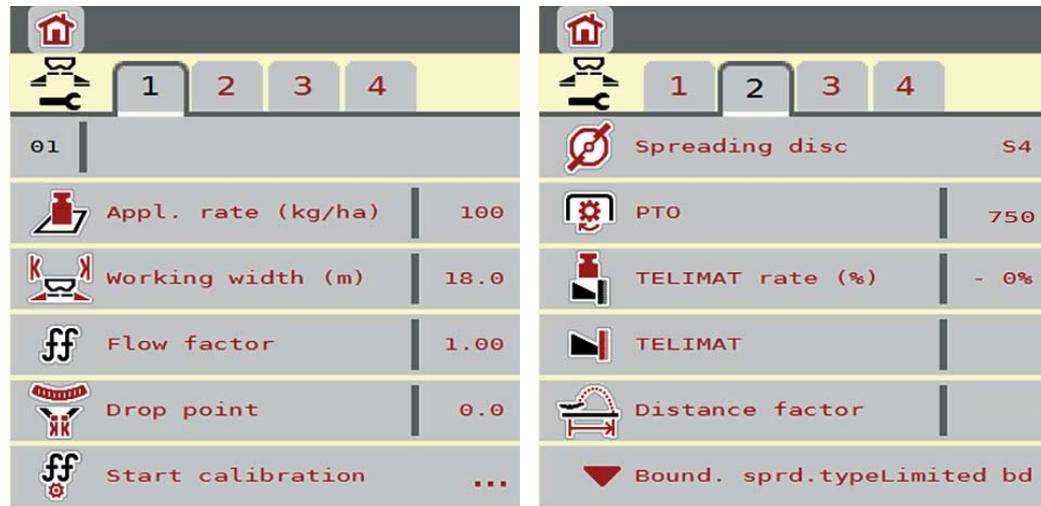


Figure 4.2: Fertiliser settings menu, tab 1 and 2

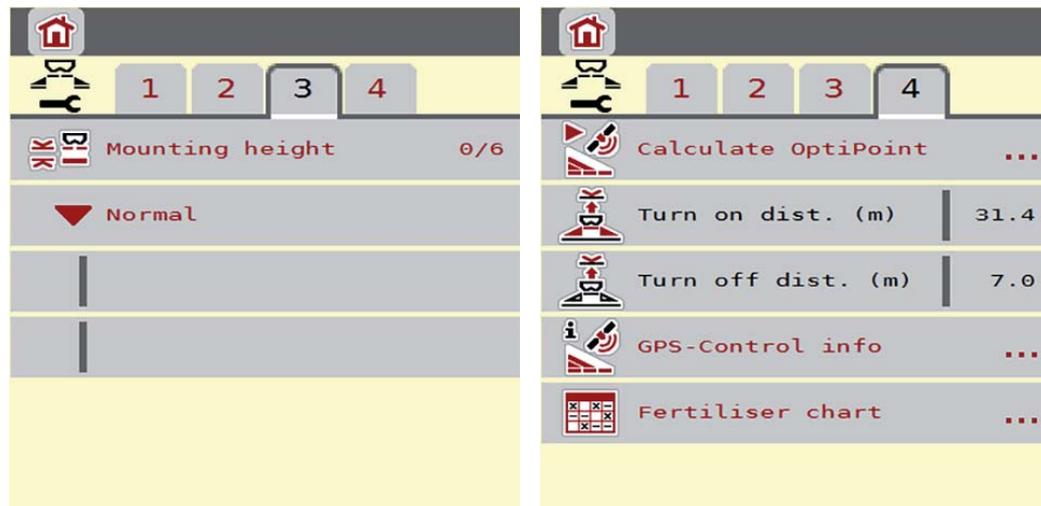


Figure 4.3: Fertiliser settings menu, tabs 3 and 4

NOTICE

Not all parameters are displayed simultaneously on one screen. The **left/right arrow keys** enable switching to the next or previous menu windows (tab).

Sub-menu	Meaning/possible values	Description
Fertiliser name	Fertiliser selected from the fertiliser chart.	Page 36
Appl. rate (kg/ha)	Target value entry for the application rate in kg/ha.	Page 26
Working width (m)	Determination of the working width to be spread.	Page 28
Flow factor	Input of the flow factor of the fertiliser used.	Page 29 M EMC function: Page 48
Drop point	Entering the drop point. This display is only for information. For AXIS 50.1 W and AXIS.2: electrical drop point setting.	Please observe the operator's manual of the machine. Page 29
Start calibration test	Open the sub-menu to execute the calibration.	Page 30
Spreading disc	Selection list: <ul style="list-style-type: none"> ● S2 ● S4 ● S6 ● S8 ● S10 ● S12 Influences the EMC mass flow control. See Page 50	Selection with Arrow keys . Confirm by pressing the Enter key .
PTO	Factory setting: 540 rpm Influences the EMC mass flow control. See Page 50	
TELIMAT quantity	Quantity reduction pre-setting for limited border spreading.	Page 33
TELIMAT	Saving the TELIMAT settings for limited border spreading.	Only for machines with TELIMAT.
Distance factor	Input of the distance factor from the fertiliser chart. Required for OptiPoint calculation.	Page 33

Sub-menu	Meaning/possible values	Description
Bound. sprd. type	Selection list: <ul style="list-style-type: none"> • Full border • Limited 	Selection with Arrow keys Confirmation with the Enter key
Mounting height	Input in cm Selection list: 0/6, 40/40, 50/50, 60/60, 70/70, 70/76	
Fertilisation method	Selection list: <ul style="list-style-type: none"> • Normal • Late 	Selection with Arrow keys . Confirm by pressing the Enter key .
Manufacturer	Fertiliser manufacturer input.	
Composition	Percentage content of chemical composition	
Calculate OptiPoint	Input of the GPS-Control parameters	Page 33
Turn-on distance (m)	Turn-on distance display	Page 90
Turn-off distance (m)	Turn-off distance display	Page 91
GPS control information	Display of information of the GPS control parameters	Page 35
Fertiliser chart	Management of fertiliser charts	Page 36

4.4.1 Application rate



In this menu, you can enter the desired target value for the application rate.

Entering the application rate:

1. Open the **Fertiliser settings > Appl. rate (kg/ha)** menu.
 - ▷ The **currently applied** application rate is displayed.
2. Enter the new value in the input field.
3. Press **OK**.
 - ▷ **The new value is saved in the machine control unit.**

You can also enter or adjust the application rate directly via the operating screen.

1. Press the Application rate [1] button on the touch screen.
 - ▷ The number input window opens.

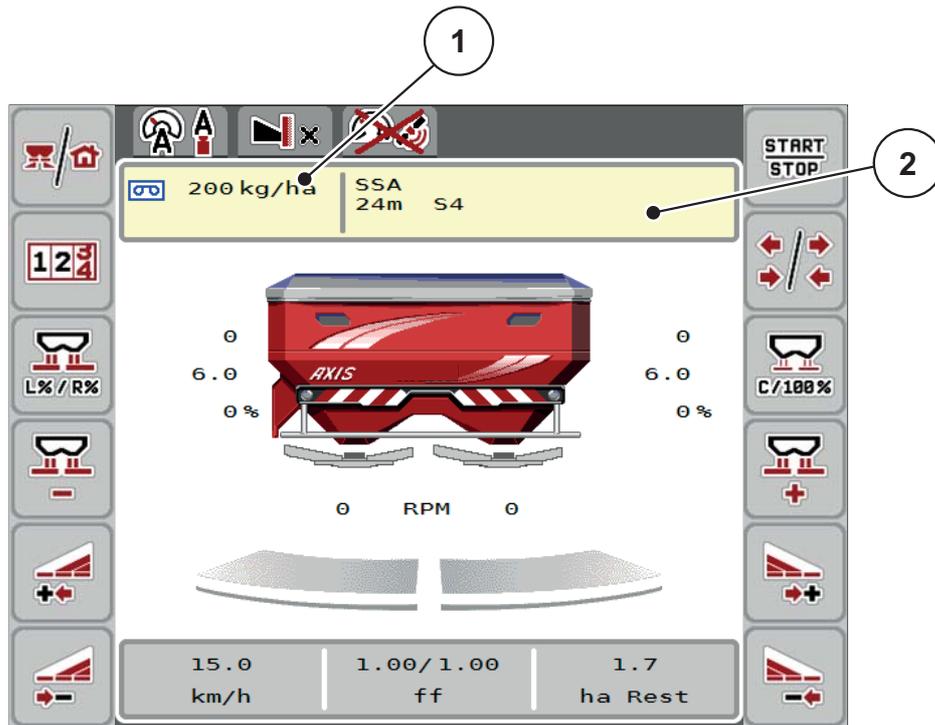


Figure 4.4: Entering the application rate on the touch screen

- [1] Application rate button
- [2] Fertiliser chart button

2. Enter the new value in the input field.
 3. Press **OK**.
- ▷ **The new value is saved in the machine control unit.**

4.4.2 Working width



You can set the working width (in meters) in this menu.

1. Open the **Fertiliser settings > Working width (m)** menu.
 - ▷ The **currently applied** working width is displayed.
 2. Enter the new value in the input field.
 3. Press **OK**.
- ▷ **The new value is saved in the machine control unit.**

4.4.3 Flow factor



The flow factor ranges between **0.2** and **1.9**. The following applies for consistent basic settings (km/h/, working width, kg/ha):

- If the flow factor is **increased**, the application rate is **decreased**.
- If the flow factor is **decreased**, the application rate is **increased**.

If the flow factor is known from earlier calibration tests or from the fertiliser chart, it can be entered **manually** in this menu.

NOTICE

In the **Start calibration test** menu, the flow factor can be determined and entered via the machine control unit. See chapter [4.4.5: Calibration test, page 30](#).

With the weighing spreaders AXIS-M 30/40 W and AXIS-M 50 W, the flow factor is calculated through dynamic weighing. However, the data may also be entered manually.

NOTICE

The flow factor calculation depends on the operating mode used. For further information on the flow factor, refer to chapter [4.5.1: AUTO/MAN mode, page 41](#).

An error message is displayed if the flow factor is outside the preset range. See [6: Alarm messages and possible causes, page 93](#). If spreading organic fertiliser or rice, the **minimum factor** has to be reduced to 0.2. Otherwise the error message will be displayed constantly.

Entering the flow factor:

1. Open the **Fertiliser settings > Flow factor** menu.
 - ▷ The **currently applied** flow factor is displayed.
2. Enter the value obtained from the fertiliser chart into the input field.

NOTICE

If the fertiliser is not listed in the fertiliser chart, enter a flow factor of **1.00**.

In the **AUTO km/h** and **MAN km/h** operating modes, we highly recommend carrying out a **calibration test** in order to be able to accurately determine the flow factor for this fertiliser.

3. Press **OK**.
 - ▷ **The new value is saved in the machine control unit.**

NOTICE

For AXIS W (**AUTO km/h + AUTO kg**), it is recommended to have the flow factor displayed in the operating screen. This allows you to monitor the flow factor control during spreading. Refer to chapter [2.2.2: Display fields, page 7](#) and chapter [4.5.1: AUTO/MAN mode, page 41](#).

Minimum factor

In accordance with the entered flow factor value, the machine control unit automatically sets the minimum factor to one of the following values:

- The minimum factor is 0.2 if the input value is smaller than 0.5.
- The minimum factor is reset to 0.4 as soon as you enter a value exceeding 0.5.

4.4.4 Drop point



With the **AXIS 50.1 W** and **AXIS-M EMC** mineral fertiliser spreaders, the drop point is set via the electrical drop point adjustment exclusively.

NOTICE

For the **AXIS 30.1/40.1 W** and **AXIS.2** machines:

Entering the drop point is merely of informative character and does not affect the settings of the mineral fertiliser spreader.

1. Open the **Fertiliser settings > Drop point** menu.
2. Determine the position for the drop point using the fertiliser chart.

⚠ CAUTION



Risk of injury due to automatic adjustment of the drop point!

For machines with electrical drop point adjustment only
After entering the value, the drop point is automatically moved to the preset value using the electrical actuating cylinders. This may cause injury and property damages.

- ▶ Before pressing **OK**, ensure that nobody is present in the hazard zone of the machine.

3. Enter the determined value in the input field.
4. Press **OK**.

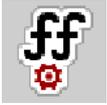
▷ **The Fertiliser settings window with the new drop point is displayed.**

If the drop point is blocked, alarm 17 is displayed; refer to chapter [6: Alarm messages and possible causes, page 93](#).

NOTICE

With the **AXIS 50.1 W**, the emergency control must not lock the drop point adjustment. Otherwise, the drop point setting unit may be damaged.

4.4.5 Calibration test



NOTICE

The **Start calibration test** menu is locked in the **AUTO km/h + AUTO kg** operating mode. This menu item is inactive.

In this menu, the flow factor can be determined based on a calibration test and saved in the machine control unit.

Carry out the calibration test:

- before spreading for the first time.
- If the fertiliser quality has changed significantly (moisture, high dust content, cracked grain).
- if a new fertiliser type is used.

The calibration test must be carried out with engaged PTO shaft at a standstill or during travel over a test section.

- Remove both spreading discs.
- Move the drop point to the calibration position (value 0).

⚠ CAUTION



Risk of injury due to automatic adjustment of the drop point!

For machines with electrical drop point adjustment only
After entering the value, the drop point is automatically moved to the preset value using the electrical actuating cylinders. This may cause injury and property damages.

- ▶ Before pressing **OK**, ensure that nobody is present in the hazard zone of the machine.
-

Entering the working speed:

1. Open the **Fertiliser settings > Start calibration** menu.
2. Enter the average working speed.
This value is required to calculate the slider position during calibration.
3. Press the **Continue** button.
 - ▷ The new value is saved in the machine control unit.
 - ▷ The second calibration test page is displayed.



Select spreading side:

4. Define the spreading side on which the calibration test is to be carried out.
 - Press the function key of the **Left** spreading side or
 - press the function key of the **Right** spreading side.
 - ▷ **The symbol indicating the selected spreading side is highlighted in red.**

Running the calibration test:

▲ WARNING



Risk of injury during calibration

Rotating machine components and ejected fertiliser may cause injury.

- ▶ **Before starting** the calibration, ensure that all preconditions have been met.
- ▶ Follow the **Calibration** chapter in the machine's operating manual.



5. Press **Start/Stop**.

- ▷ The metering slide of the previously selected spreading side opens and the calibration test is started.

NOTICE

The calibration test can be stopped at any time by pressing the **ESC** key. The metering slide is closed and the **Fertiliser settings** menu is displayed.

NOTICE

The calibration time is not relevant for the accuracy of the results. However, a **minimum of 20 kg** should be calibrated.



6. Press **Start/Stop** again.

- ▷ The calibration is completed.
- ▷ The metering slider closes.
- ▷ The third calibration page is displayed.

Recalculating the flow factor

⚠ WARNING



Risk of injury due to rotating machine parts

Any contact with rotating machine parts (universal drive shaft, hubs) may lead to bruises, abrasions and crushing injuries. Body parts or objects may be caught or drawn in.

- ▶ Switch off the tractor motor.
- ▶ Switch off the PTO shaft and secure it against unauthorised activation.

-
7. Weigh the collected weight (taking into account the empty weight of the collecting vessel).
 8. Enter the weight under the **Collected weight** menu item.
 9. Press **OK**.
 - ▷ The new value is saved in the machine control unit.
 - ▷ The **Flow factor calculation** menu is displayed.

NOTICE

The flow factor must be between 0.4 and 1.9.

10. Define the flow factor.
 - To apply the **newly calculated** flow factor, press **Confirm flow factor** button.
 - To confirm the **previously saved** flow factor, press the **ESC** key.
- ▷ **The flow factor is saved.**
 - ▷ **The Move to drop point alarm message is displayed.**

⚠ CAUTION



Danger of injury during the automated drop point adjustment.

For machines with electrical drop point actuators

After confirming the new flow factor the drop point is automatically moved to the preset values using the electrical actuating cylinders. This may cause injury and property damages.

- ▶ Before actuating the **Start/Stop** function key, ensure that nobody is present in the hazard zone of the machine.
-

4.4.6 TELIMAT rate



In this menu, the TELIMAT quantity reduction can be set (in percent). This setting is used if the boundary spreading function is activated via the TELIMAT sensor or the **TELIMAT** function key is pressed.

NOTICE

It is recommended to reduce the application rate at the boundary spreading side by 20 %.

Entering the TELIMAT quantity:

1. Open the **Fertiliser settings > TELIMAT rate** menu.
 2. Enter the value in the input field and confirm.
- ▷ **The fertiliser settings window with the new TELIMAT quantity is displayed.**

4.4.7 Calculate OptiPoint



In the **Calculate OptiPoint** menu, you can enter the parameters to calculate the optimum turn-on and turn-off distances **in the headlands**.

It is very important to enter the distance factor of the fertiliser used to obtain an exact calculation.

NOTICE

For the distance factor of the fertiliser used please refer to the fertiliser chart of the machine.

1. Enter the prescribed value in the **Fertiliser settings > Distance factor** menu.
2. Open the **Fertiliser settings > Calculate OptiPoint** menu.
 - ▷ The first page of the **Calculate OptiPoint** menu is displayed.

NOTICE

The indicated forward speed refers to the forward speed in the area of the switching positions! See chapter [5.9: GPS Control, page 88](#).

3. Enter the **average forward speed** in the switching positions area.
 - ▷ The second page of the menu is displayed.

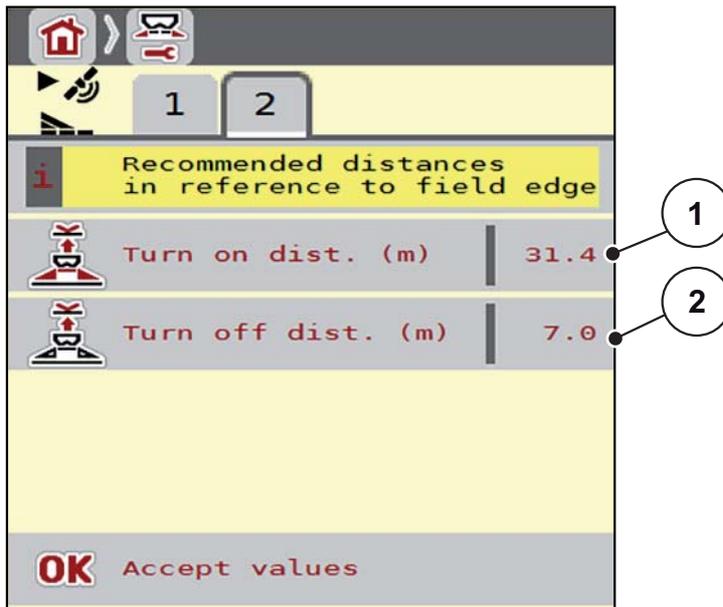


Figure 4.5: Calculate OptiPoint, page 2

Number	Meaning	Description
1	Distance (in meters) with reference to the field border at which the metering sliders open.	Page 90
2	Distance (in meters) with reference to the field border at which the metering slides close.	Page 91

NOTICE

On this page, the parameter values can be manually adjusted. See chapter [5.9: GPS Control, page 88](#).

Changing the values

4. Open the window of the desired entry.
 5. Enter the new values.
 6. **Press OK.**
 7. Press the **Accept values** button.
- ▷ **The OptiPoint has been calculated.**
 - ▷ **The machine control unit switches to the GPS control information window.**

4.4.8 GPS control information



The **GPS Control Information** menu provides information on the calculated values set in the **Calculate OptiPoint** menu.

Depending on the terminal used, 2 distances (CCI, Müller Elektronik) and/or 1 distance and 2 time values (John Deere, ...) are displayed.

- **Manually** enter the values displayed here in the respective settings menu of the GPS terminal.

NOTICE

This menu is for information purposes only.

- Observe the operator's manual of your GPS terminal.

1. Open the **Fertiliser settings > GPS control info** menu.

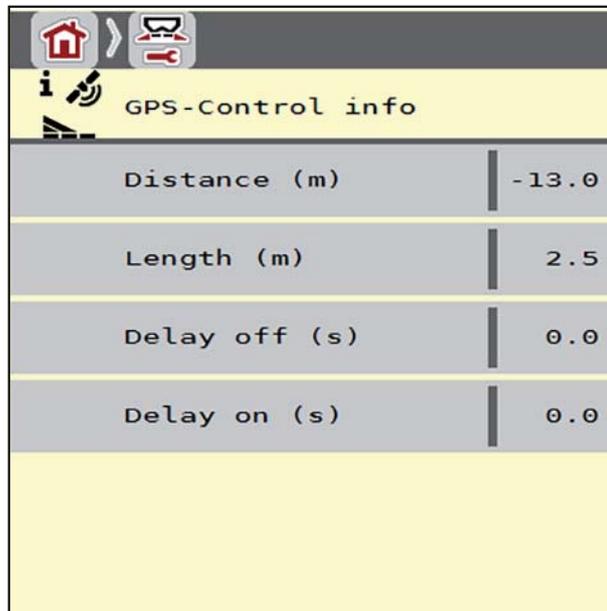


Figure 4.6: GPS control information menu

4.4.9 Fertiliser chart



In these menus, you can create and manage your own **fertiliser charts**.

NOTICE

Selecting a fertiliser chart has an effect on the fertiliser settings, the machine control unit and the mineral fertiliser spreader. The set application rate is overwritten by the stored value from the fertiliser chart.

NOTICE

You will be able to automatically manage fertiliser charts and to transfer them from your ISOBUS terminal.

- **FertChartApp**: Contact your dealer to install the FertCart app on your ISOBUS terminal.

Create new chart entry

Up to **30** entries can be created in the Machine control unit.

1. Open the **Fertiliser settings > Fertiliser chart** menu.

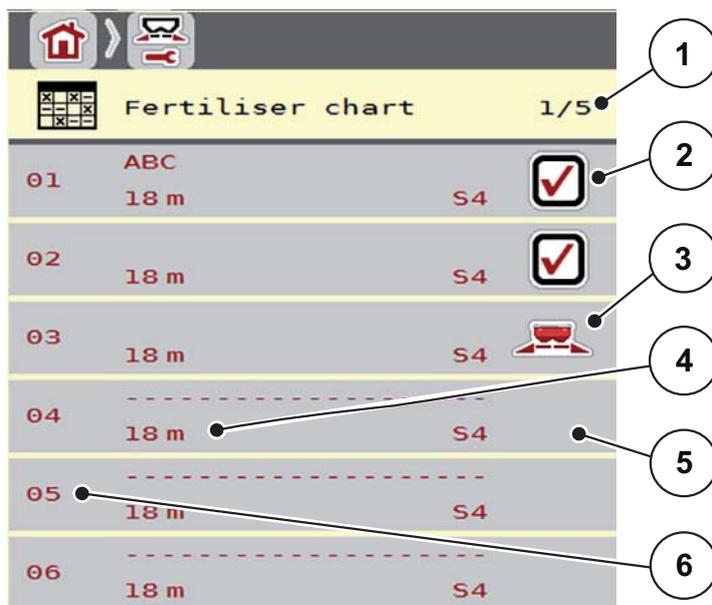


Figure 4.7: Fertiliser chart menu

- [1] Page number, total number of pages
- [2] Display for a fertiliser chart filled with values
- [3] Indicates an active fertiliser chart
- [4] Fertiliser chart name field
- [5] Empty fertiliser chart
- [6] Chart number

2. Select an empty entry.

The **name field** consists of the fertiliser name, the working width and the spreading disc type.

- ▷ The selection window is displayed.

3. Press the **Open and return...** option.
 - ▷ The **Fertiliser settings** menu is displayed and the selected element is loaded into the fertiliser settings as **Active fertiliser chart**.
4. Open the **Fertiliser name** menu item.
5. Enter a name for the fertiliser chart.

NOTICE

We recommend naming the fertiliser chart after the fertiliser. This makes it easier to assign fertilisers to the fertiliser chart.

6. Edit the parameters of the **fertiliser chart**.
 - See chapter [4.4: Fertiliser settings, page 24](#).

Selecting a fertiliser chart:

1. Open the **Fertiliser settings > Fertiliser chart** menu.
2. Select the desired fertiliser chart.
 - ▷ The selection window is displayed.
3. Select the **Open and return...** option.
 - ▷ **The Fertiliser settings menu is displayed and the selected element is loaded into the fertiliser settings as Active fertiliser chart.**

Copying an existing fertiliser chart

1. Select the desired fertiliser chart.
 - ▷ The selection window is displayed.
2. Select the **Copy element** option.
 - ▷ **A copy of the fertiliser chart is now on the first free position of the list.**

Deleting an existing fertiliser chart

1. Select the desired fertiliser chart.
 - ▷ The selection window is displayed.
2. Select the **Delete element** option.
 - ▷ **The standard settings are applied.**
 - ▷ **The fertiliser chart is deleted from the list.**

Managing the selected fertiliser chart via the operating screen

You can also manage the fertiliser chart directly via the operating screen.

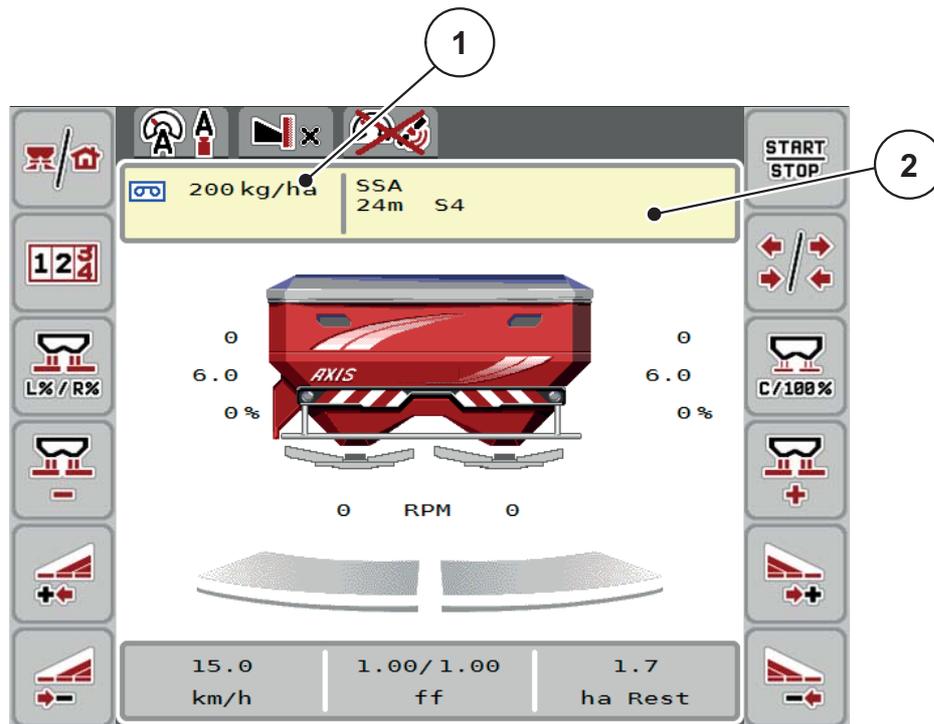


Figure 4.8: Managing the fertiliser chart via the touch screen

- [1] Application rate button
- [2] Fertiliser chart button

1. Press the Fertiliser chart [2] button on the touch screen.
 - ▷ The active fertiliser chart is displayed.
2. Enter the new value in the input field.
3. Press **OK**.
 - ▷ **The new value is saved in the machine control unit.**

4.5 Machine settings



In this menu, the tractor and machine settings can be configured.

- Open the **Machine settings** menu.

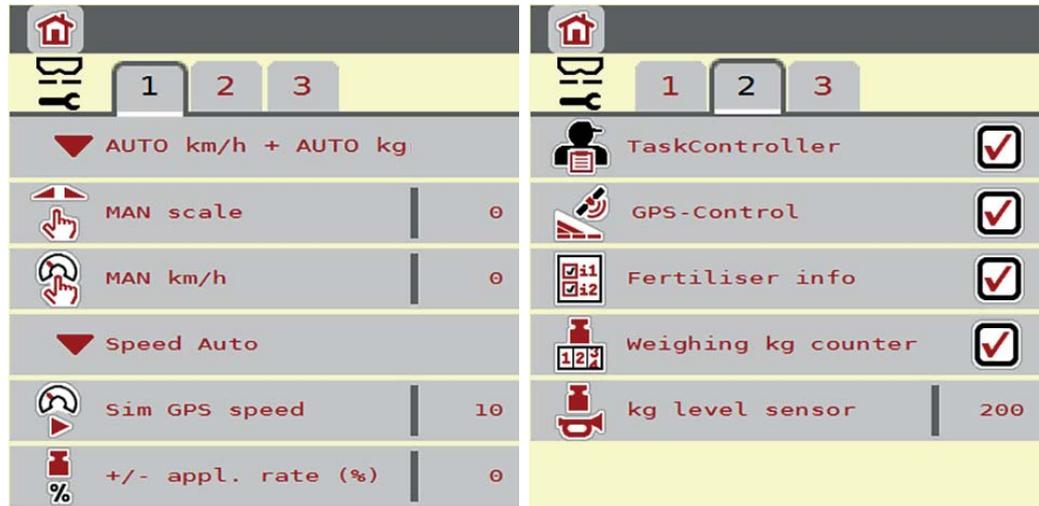


Figure 4.9: Machine settings menu, page 1 and 2

NOTICE

Not all parameters are displayed simultaneously on one screen. The **left/right arrow keys** enable switching to the next or previous menu windows (tab).

NOTICE

The **Weighing kg counter** is only displayed in the **AUTO km/h + Stat. kg** and **AUTO km/h + AUTO kg** operating modes and can be activated here! See chapter [4.5.1: AUTO/MAN mode, page 41](#).

Sub-menu	Meaning	Description
Operating mode	Determining the automatic or manual operating mode.	Page 41
MAN scale	Setting the manual scale value. (only effective in the respective operating mode)	To be entered in a separate input window.
MAN km/h	Setting the manual forward speed. (only effective in the respective operating mode)	To be entered in a separate input window.

Sub-menu	Meaning	Description
Speed/signal source	Selection/Limitation of the speed signal <ul style="list-style-type: none"> ● Speed Auto (automatic selection of transmission or radar/GPS) ● Transmission ● GPS J1939¹ 	
Sim GSP speed	For GPS J1939 only: Indication of forward speed in the event of a loss of the GPS signal	NOTE! The indicated forward speed is to be maintained constantly at all times.
+/- appl. rate	Presetting the quantity adjustment for the different spreading types.	Page 45
Task Control	Activation of the ISOBUS Task Controller functions for documentation and for application map spreading. Selection list: <ul style="list-style-type: none"> ● Task Control on (checked) ● Task Control off 	
GPS Control	Activation of the function to control the machine sections via a GPS control unit. Selection list: <ul style="list-style-type: none"> ● GPS Control auto (checked) ● GPS Control off 	
Fertiliser information	Activation of the fertiliser information (fertiliser name, spreading disc type, working width) in the operating screen.	The check mark is to be set in a separate window.
Weighing kg counter	Check for activation of the kg counter function.	Page 46
kg level sensor	Input of the residual quantity to trigger an alarm message via the weigh cells.	
Application rate corr. L/R (%)	Correction of the deviations between the entered application rate and the actual application rate. <ul style="list-style-type: none"> ● Correction in percent either on the right or left side 	

1. RAUCH does not assume any liability in the event of a loss of the GPS signal.

4.5.1 AUTO/MAN mode

NOTICE

The settings in each menu are very important for optimal **automatic mass flow control (M EMC function)**.

Please be particularly aware of the specifics of the M EMC function for the following menu items:

- in the **Fertiliser settings** menu
 - Spreading disc. See [Page 50](#).
 - PTO speed. See [Page 50](#).
- In the **Machine settings** menu
 - AUTO / MAN mode. See [Page 51](#) and chapter [\[5\]](#).

The machine control unit automatically controls the metering quantity according to the forward speed signal. The application rate, working width and flow factor are taken into account.

By default, the unit is operated in the **automatic** mode.

The **manual** mode is only applied:

- if there is no forward speed signal (radar or wheel sensor not available or defective),
- when slug pellets or seeds (fine seeds) are spread.

NOTICE

To ensure regular spreading of the spreading material in manual operating mode, it is imperative to work with a **constant forward speed**.

NOTICE

Spreading in different operating modes is described in chapter [5: Spreading operation with the machine control unit AXIS ISOBUS, page 73](#).

Menu	Meaning	Description
AUTO km/h + AUTO kg	<ul style="list-style-type: none"> ● Selecting the automatic mode with automatic weighing ● Mass flow control for M EMC machines 	<ul style="list-style-type: none"> ● Page 42 ● Page 51
AUTO km/h + Stat. kg	Automatic mode with static weighing (not available with AXIS-M 30.2 EMC)	Page 43
AUTO km/h	Selecting the automatic mode	Page 44
MAN scale	Metering slide adjustment for manual mode	Page 44
MAN km/h	Forward speed adjustment for manual mode	Page 44

Operating mode selection

1. Switch on the AXIS ISOBUS machine control unit.
2. Open the **Machine settings > AUTO/MAN mode** menu.
3. Select the desired menu item from the list.
4. Press **OK**.
5. Follow the instructions on the screen.

NOTICE

We recommend displaying the flow factor in the operating screen. This way, the mass flow control can be monitored during spreading. Refer to chapter [2.2.2: Display fields, page 7](#) and chapter [4.5.1: AUTO/MAN mode, page 41](#).

- Important information on the use of operating modes for the spreading operation is provided in chapter [5: Spreading operation with the machine control unit AXIS ISOBUS, page 73](#).



Automatic mode with automatic weighing (AUTO km/h + AUTO kg)

1. Select operating mode AUTO km/h + AUTO kg
2. Press **OK**.
 - ▷ The **Weigh quantity** window is displayed.
3. **Case a: Refill**
 - ▷ The flow factor setting is retained.
 - ▷ The left fertiliser quantity is increased by the refill quantity.**Case b: New fertiliser**
 - ▷ The flow factor is reset to 1. If necessary, the required flow factor value can be entered subsequently. Refer to chapter [4.4.3: Flow factor, page 28](#).
4. Select the desired type of filling.
 - ▷ **The machine control unit switches to the operating screen.**

⚠ CAUTION



Cancelling the weighing function may lead to incorrect metering

The **ESC** button must not be pressed. This may lead to serious errors in application rate/metering.

- ▶ To confirm the weighing function, always select the type of filling.



Automatic mode with static weighing (AUTO km/h + Stat. kg)

The **AUTO km/h + Stat. kg** operating mode is recommended for spreading on uneven, hilly terrain and/or for smaller application rates. Automatic flow factor control does not take place during spreading. However, it is possible to calculate the new flow factor with the **Weigh remaining quantity** function.

NOTICE

The **AUTO km/h + Stat. kg** menu is only displayed if the **AXIS W** mineral fertiliser spreader has been configured in the factory.

1. Switch on the AXIS ISOBUS machine control unit.
2. Refill the hopper with fertiliser.
3. Open the **Machine settings > AUTO / MAN mode** menu.
4. Open the selection window.
5. Select operating mode **AUTO km/h + Stat. kg**.
6. Press **OK**.
 - ▷ The **Weigh quantity** window is displayed.
7. Press the **Enter key** to confirm the **New fertiliser** menu item.
 - ▷ The flow factor is reset to 1.0.
- ▷ **The machine control unit switches to the operating screen.**

NOTICE

To change the fertiliser settings, open the **Weighing trip counter > Weigh quantity** menu before starting the spreading and during standstill.



Automatic mode (AUTO km/h)

1. Switch on the AXIS ISOBUS machine control unit.
 2. Refill the hopper with fertiliser.
 3. Open the **Machine settings > AUTO / MAN mode** menu.
 4. Select operating mode **AUTO km/h**.
 5. Press **OK**.
- ▷ **The operating mode setting is saved.**



Manual operation (MAN km/h)

1. Switch on the AXIS ISOBUS machine control unit.
 2. Open the **Machine settings > AUTO / MAN mode** menu.
 3. Select operating mode **MAN km/h**.
 4. Press **OK**.
 5. Open the **Machine settings > MAN (km/h)** menu.
 6. Enter the value for the forward speed during spreading.
 7. Press **OK**.
- ▷ **The operating mode setting is saved.**

NOTICE

In order to achieve an optimum spreading result, a calibration test is to be carried out before spreading.



Manual operation scale (MAN scale)

1. Open the **Machine settings > AUTO / MAN mode** menu.
 2. Select the **MAN scale** menu item.
 3. Press **OK**.
 4. Open the **Machine settings > MAN scale** menu.
 5. Enter the scale value for the metering slider opening.
 6. Confirm by pressing the **Enter key**.
- ▷ **The operating mode setting is saved.**

4.5.2 +/- application rate



In this menu, an **Application rate adjustment** percentage for normal spreading can be specified.

The preset value of the metering slider opening serves as basis (100%).



NOTICE

During operation, the **Appl. rate +/ Appl. rate -** function keys can be used to adjust the spreading quantity by the **+/- appl. rate** factor at any time.

The pre-configuration can be restored with the **C 100% key**.

Defining the quantity reduction:

1. Open the **Machine settings > +/- appl. rate (%)** menu.
2. Enter the percentage by which the spreading quantity is to be adjusted.
3. Press **OK**.

4.5.3 Weighing kg counter

Here, the display of the **Adjust kg counter** function in the **Weighing trip counter** menu can be activated.

NOTICE

The **Weighing kg counter** is only displayed in the **AUTO km/h + Stat. kg** and the **AUTO km/h + AUTO kg** operating modes. Refer to chapter [4.5.1: AUTO/MAN mode, page 41](#). It can be activated here in the **Machine settings** menu!



1. Open the **Machine settings** menu.

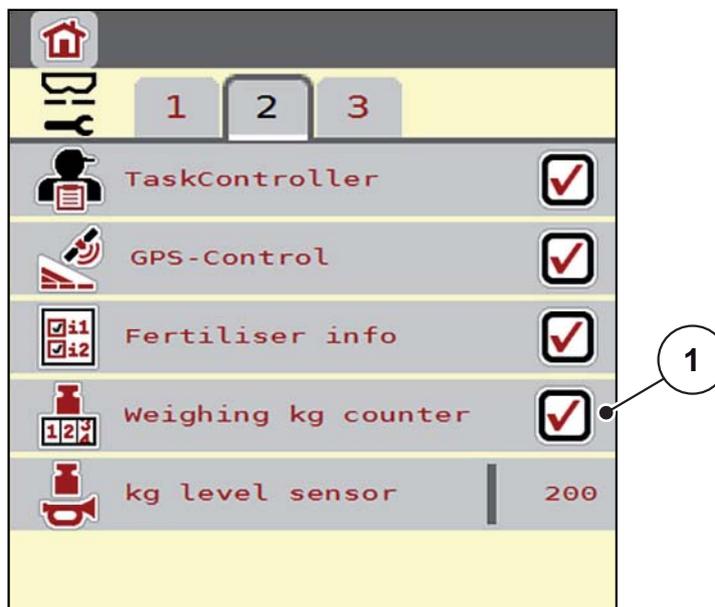


Figure 4.10: Activating/deactivating the weighing kg counter

2. Select the **Weighing kg counter** [1] menu item.
3. Enable it.
 - ▷ In the **Weighing trip counter** menu, the **Adjust kg counter** submenu is displayed. See [4.10.2: Determining the applied fertiliser quantity, page 63](#).

4.6 Settings for M EMC machines

NOTICE

The settings in each menu are very important for optimal **automatic mass flow control (M EMC function)**.

Make sure you observe the following menu entries in particular:

- in the **Fertiliser settings** menu
 - Spreading disc. See [Page 50](#).
 - PTO speed. See [Page 50](#).
- In the **Machine settings** menu
 - AUTO / MAN mode. See [Page 51](#) and chapter [\[5\]](#).

4.6.1 Fertiliser settings with the M EMC function



- Open the **Main menu > Fertiliser settings** menu.

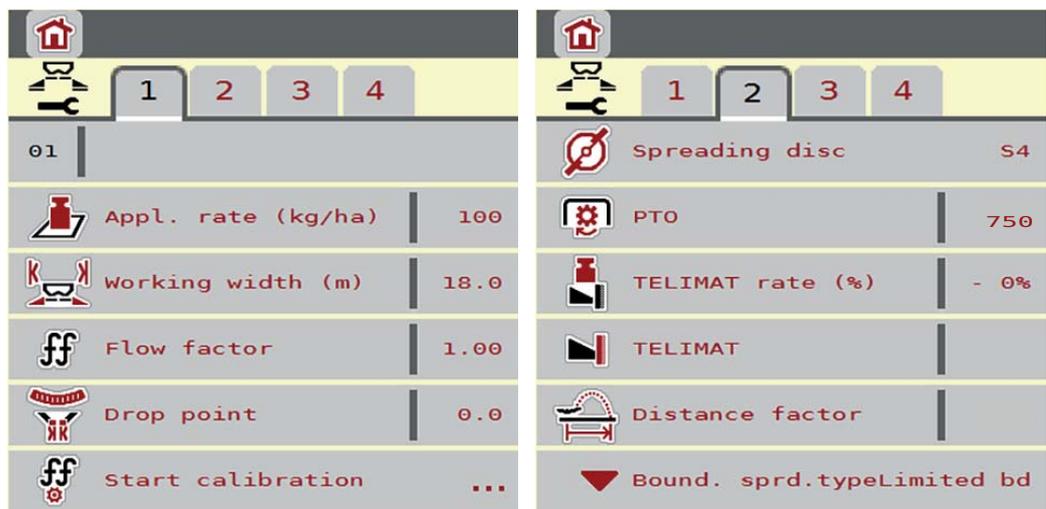


Figure 4.11: Fertiliser settings menu, tab 1 and 2

NOTICE

Not all parameters are displayed simultaneously on one screen. The **left/right arrow keys** enable switching to the next or previous menu windows (tab).

Sub-menu	Meaning/possible values	Description
Flow factor	Input of the flow factor of the fertiliser used.	Page 29
Spreading disc	List of spreading discs supported: <ul style="list-style-type: none"> ● S1 ● S2 ● S4 ● S6 ● S8 	
PTO shaft	Setting according to the values in the fertiliser chart	

Flow factor



The **M EMC function** determines the flow factor specifically for each spreading side. Therefore, no manual input is required.

NOTICE

We recommend displaying the flow factor in the operating screen. This way, the mass flow control can be monitored during spreading. Refer to chapter [2.2.2: Display fields, page 7](#) and chapter [4.5.1: AUTO/MAN mode, page 41](#).

Display of flow factor with the M EMC function

Enter a value for the flow factor in the **Flow factor** sub-menu as a standard. However, during spreading and with enabled **M EMC function**, the machine control unit controls the left and the right metering slides separately. Both values are shown on the operating screen.

When pressing the **Start/Stop** key, the display updates the flow factor display with a slight delay. The display is updated at regular intervals.

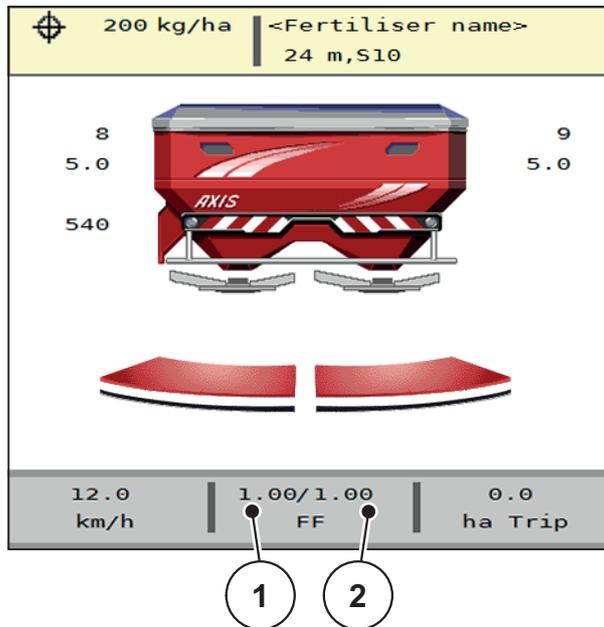


Figure 4.12: The left and right flow factors are controlled separately (M EMC function activated).

- [1] Flow factor for the left metering slide opening
- [2] Flow factor for the right metering slide opening

Calibration test



NOTICE

The **Start calibration test** menu is locked in the **AUTO km/h + AUTO kg** operating mode for the M MEMC function. This menu item is inactive.

In this menu, the flow factor can be determined based on a calibration test and saved in the machine control unit.

Spreading disc type

NOTICE

For **optimal idle measurement** check the correct entries are in the **Fertiliser settings** menu.

- The entries in the **Spreading disc** and **PTO shaft** menu items must comply with the actual settings of your machine.
-

The mounted spreading disc type is preset in the control unit at the factory. If you have mounted different spreading discs on your machine, you must enter the correct type in your control unit.

1. Open the **Fertiliser settings > Spreading disc** menu.
 2. Activate the spreading disc type in the selection list.
- ▷ **The Fertiliser settings window with the new spreading disc type is displayed.**

PTO shaft

NOTICE

For **optimal idle measurement** check the correct entries are in the **Fertiliser settings** menu.

- The entries in the **Spreading disc** and **PTO shaft** menu items must comply with the actual settings of your machine.
-

The specified PTO speed is preset in the control unit to 540 rpm as a standard factory setting. If you want to set a different PTO speed, you must change the stored value in the control unit.

1. Open the **Fertiliser settings > PTO** menu item.
 2. Enter the RPM.
- ▷ **The display shows the Fertiliser settings window with the new PTO speed.**

NOTICE

Please observe chapter [5.4.2: Mass flow control with the M EMC function, page 82](#).

4.6.2 Machine settings with the M EMC function



- Open the **Machine settings** menu.

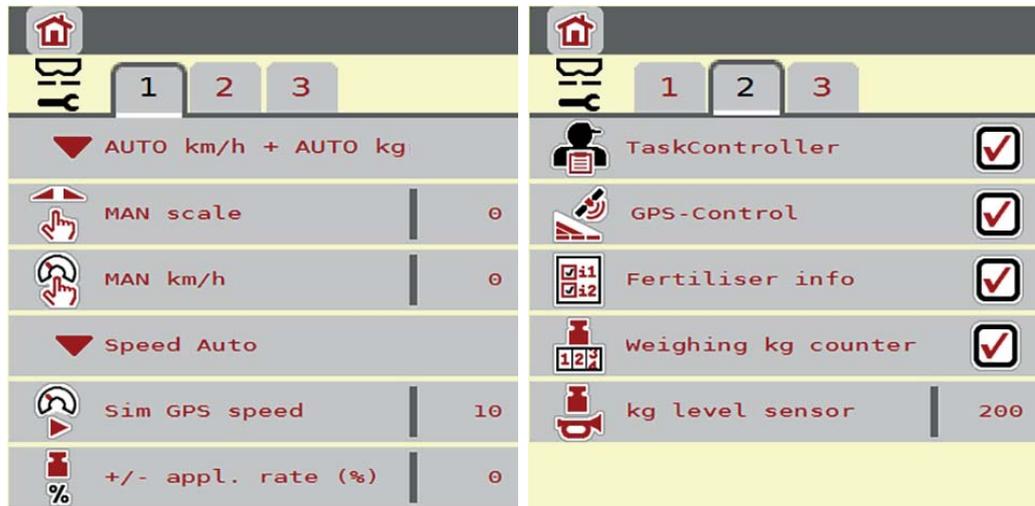


Figure 4.13: Machine settings menu, page 1 and 2

AUTO/MAN mode

The machine control unit automatically controls the metering quantity according to the forward speed signal. The application rate, working width and flow factor are taken into account.

By default, the unit is operated in the **automatic** mode.

NOTICE

Spreading in different operating modes is described in chapter [5: Spreading operation with the machine control unit AXIS ISOBUS, page 73](#).



Automatic mode with automatic mass flow control (AUTO km/h + Auto kg)

The **AUTO km/h + AUTO kg** operating mode continuously controls the fertiliser quantity during spreading according to the forward speed and the fertiliser's flow behaviour. This optimises the metering of the fertiliser.

4.7 Fast emptying



To clean the machine after spreading or to quickly empty residual spreading material, select the **Fast emptying** menu.

For this purpose, before storing the machine, we recommend **completely opening** the metering slides via the fast emptying function and switching off the AXIS ISOBUS in this state. This prevents accumulation of humidity in the hopper.

NOTICE

Before starting the fast emptying process, it is to be ensured that all preconditions have been met. Please observe the operating manual of the machine (emptying of residual material).

Carrying out the fast emptying process:

1. Open the **Main menu > Fast emptying** menu.

⚠ CAUTION



Risk of injury due to automatic adjustment of the drop point!

With machines with electrical drop point adjustment Press **Start/Stop** to automatically move the drop point to the preconfigured value by means of the electrical actuating cylinder. This may cause injury and property damages.

- ▶ Before pressing **Start/Stop**, ensure that **nobody** is present in the hazard zone of the machine.

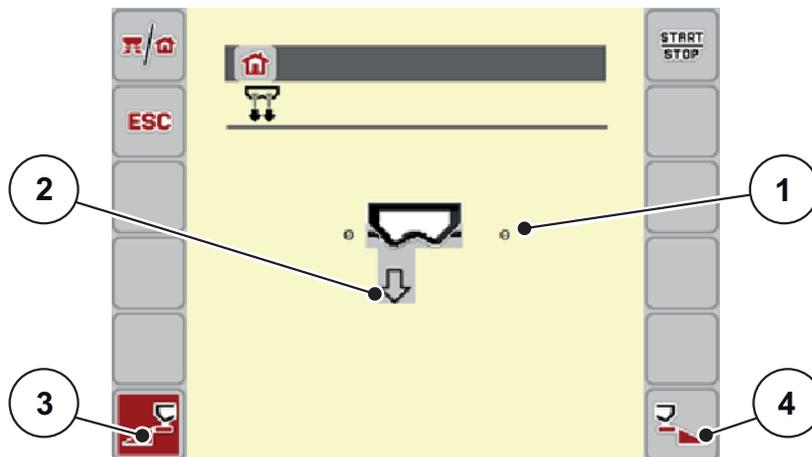


Figure 4.14: Fast emptying menu

- [1] Metering slide opening display
- [2] Symbol for fast emptying (here: left side selected, not started)
- [3] Fast emptying of the left spreading side (selected)
- [4] Fast emptying of the right spreading side (not selected)

2. Press the **Function key** to select the spreading side for which the fast emptying function is to be carried out.
 - ▷ The selected spreading side is displayed as symbol ([Figure 4.14](#), position [2]).
3. Press **Start/Stop**.
 - ▷ The fast emptying process starts.
4. Press **Start/Stop** once the hopper is empty.
 - ▷ The fast emptying process is completed.
5. Press **ESC** to return to the **Main menu**.

▲ CAUTION**Risk of injury due to automatic drop point adjustment**

With machines with electrical drop point adjustment Press **Start/Stop** to automatically move the drop point to the preconfigured value by means of the electrical actuating cylinder. This may cause injury and property damages.

- ▶ Before pressing **Start/Stop**, ensure that **nobody** is present in the hazard zone of the machine.

4.8 System / Test



In this menu, the system and test settings for the machine control unit can be configured.

- Open the **Main menu > System / test** menu.

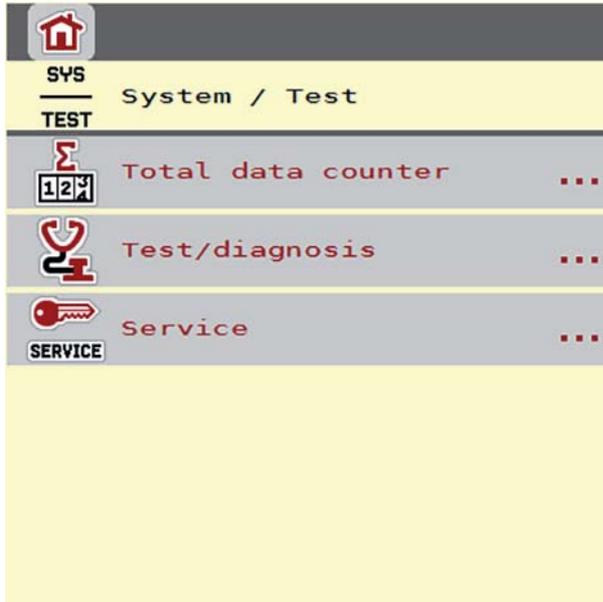


Figure 4.15: System/Test menu

Sub-menu	Meaning	Description
Total data counter	Display of the total <ul style="list-style-type: none"> • spread quantity in kg • spread area in ha • spread time in h • distance travelled in km 	
Test/diagnosis	Checking actuators and sensors.	Page 55
Service	Service settings	Password-protected; only accessible for service personnel

4.8.1 Total data counter



In this menu, all of the spreader's counter readings are displayed.

- spread quantity in kg
- spread area in ha
- spread time in h
- distance travelled in km

NOTICE

This menu is for information purposes only.

4.8.2 Test/diagnosis



The **Test/diagnosis** menu enables function monitoring and checking of specific sensors/actuators.

NOTICE

This menu is for information purposes only.

The list of sensors depends on the equipment of the machine.

Sub-menu	Meaning	Description
Slide test points	Test for approaching the various position points of the sliders.	Checking the calibration
Metering slide actuator	Manually positioning the left and right metering slides	Page 56
Voltage	Checking the operating voltage.	
Level sensor	Checking the level sensor.	
Weigh cells	Checking the weigh cells.	
LIN Bus	Checking the actuators.	
DP test points	Test for approaching the various position points of the drop point.	Checking the calibration
DP actuator	Approaching the drop point.	
TELIMAT sensor	Checking the TELIMAT sensors	
M EMC	Checking the sensors for the M EMC function.	
Hopper cover	Checking the actuators.	
SpreadLight	Checking the working headlights.	

Example test/diagnosis of the slides

⚠ CAUTION



Risk of injury due to moving machine parts

During the tests, machine parts may start to move automatically.

- ▶ Before carrying out the test, ensure that nobody is present in the danger zone of the machine.

1. Open the **System / Test > Test/diagnosis** menu.
2. With the arrow keys, navigate to the **Metering slide actuator** page.
 - ▷ The status of the sensors/actuators is displayed.

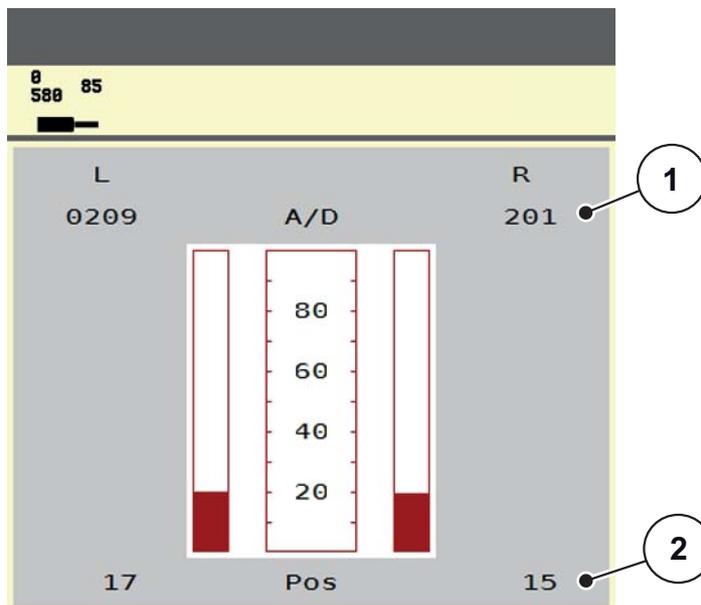


Figure 4.16: Test/diagnosis, example: Metering slide actuator

- [1] Signal display
- [2] Position display

Under **Signal**, the status of the electrical signal for the left and right sides is separately displayed.

The actuators can be extended and retracted by pressing the arrow keys.

Example LIN-Bus

▲ CAUTION



Risk of injury due to moving machine parts.
During the tests, machine parts may start to move automatically.
▶ Ensure that nobody is present in the area of the machine before carrying out the tests.

1. Open the **System / Test > Test/diagnosis** menu.
2. Select the **LIN-Bus** menu item.
 - ▷ The status of the sensors/actuators is displayed.

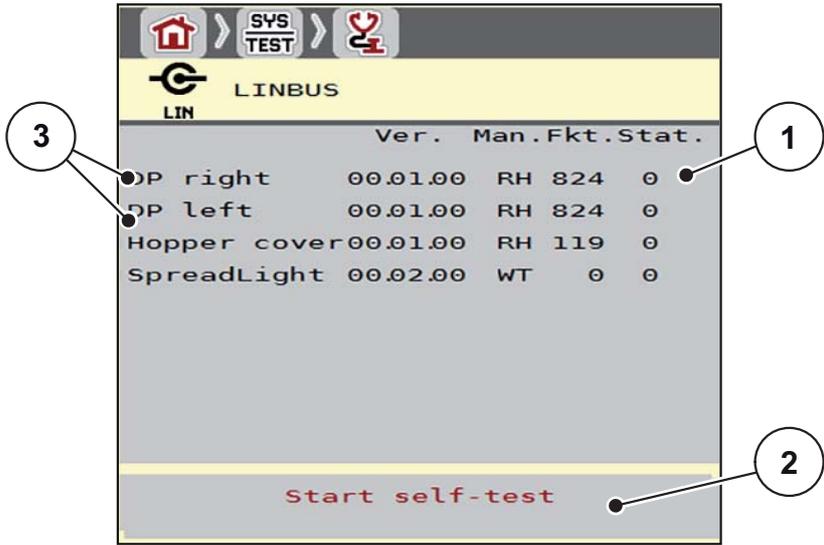


Figure 4.17: Test/diagnosis, example: LIN-Bus

- [1] Status display
- [2] Start self-test
- [3] Connected actuators

LIN bus participant status notification

The actuators are in different states:

- 0 = OK; no actuator error
- 2 = blockage
- 4 = overload

4.8.3 Service



NOTICE

An input code is required to modify the settings in the **Service** menu. These settings can **only** be modified by authorized service personnel.

4.9 Information



The **Info** menu provides information on the control unit.

NOTICE

This menu provides information on the configuration of the machine.
The information list depends on the equipment of the machine.

4.10 Weighing trip counter



This menu provides values regarding spreading work carried out and functions for the weighing operation.

- Open the **Main menu > Weighing/Trip count.** menu.
 - ▷ The **Weighing/Trip count.** menu is displayed.



Figure 4.18: Weighing trip counter menu

NOTICE

Adjust kg counter is only displayed in the **AUTO km/h + Stat. kg** and **AUTO km/h + AUTO kg** operating modes, if the respective option is activated in the **Machine settings** menu ([Page 46](#)).

Sub-menu	Meaning	Description
Trip counter	<ul style="list-style-type: none"> ● Applied spreading quantity, applied area and applied distance display. ● Display of the remaining quantity. ● Display of the remaining area and distance. 	Page 61
Metre counter	Display showing the distance travelled since the meter counter was last reset.	Reset (zeroing) by pressing the C 100 % key
Weigh quantity	Only spreader with weigh cells: The Weigh quantity window is displayed.	Page 64
Zeroing the scales	For weighing spreaders only: Weighing value for empty scales is set to "0 kg".	Page 66
Adjust kg counter	For weighing spreaders only: Display and comparison of fertiliser applied according to the scales.	Page 63

4.10.1 Trip counter

This menu provides the following values:

- spread quantity (kg)
- spread area (ha)
- Remaining quantity (kg)
- spread distance (m)
- possible area (ha) with the calculated remaining quantity
- possible distance (m) with the calculated remaining quantity

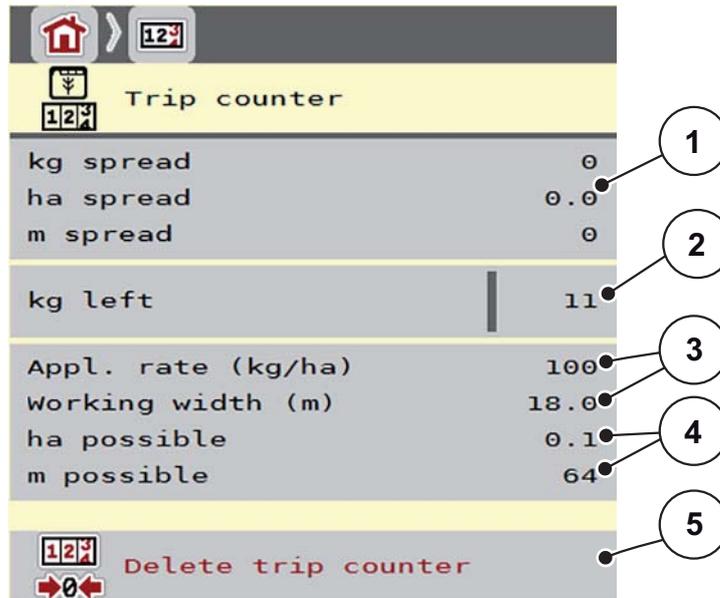


Figure 4.19: Trip counter menu

- [1] Spread quantity, area and distance display fields
- [2] Remaining quantity display
- [3] Current application rate and working width from the fertiliser settings menu
- [4] Display fields of the possible area and distance that can be spread with the remaining quantity
- [5] Delete trip counter

The **Application rate** and **Working width** values cannot be changed in this menu. They are for information purposes only.

NOTICE

For **Weighing spreaders** the current loading weight can only be determined by weighing.

For mineral fertiliser spreaders without weigh cells

- Enter the filling quantity manually (see below).
- The remaining quantity is calculated from the fertiliser and machine settings as well as the driving signal.

Entering the remaining quantity when refilling (does not apply for weighing spreaders):

1. Open the **Weighing trip counter > Trip counter** menu.
 - ▷ The residual quantity from the last spreading process is displayed.
2. Fill the hopper.
3. Enter the new total weight for the fertiliser in the hopper.
4. Press **OK**.
 - ▷ The device calculates the values for the possible spread area and the possible spread distance.

NOTICE

The application rate and working width values **cannot** be changed in this menu. **These values are for information only.**

Clearing the trip counter:

1. Open the **Weighing/Trip counter > Trip-counter** sub-menu.
 - ▷ The values for spreading quantity, area and distance collected **since the last deletion** are displayed.
2. Press the **Delete trip counter** button.
 - ▷ **All values of the trip counter are reset to 0.**

Checking the trip counter during spreading:

During spreading, i.e. when the slides are open, the **Trip counter** menu can be opened to display the current values.

NOTICE

If the values are to be permanently monitored during spreading, freely assignable display fields in the operating screen may also be assigned the **kg Trip**, **ha Trip** or **m Trip** values, refer to chapter [2.2.2: Display fields, page 7](#).

4.10.2 Determining the applied fertiliser quantity

After spreading, the **Adjust kg counter** menu displays the fertiliser quantity applied according to the scales. This value can be transferred to the counters.

The menu displays the applied fertiliser quantity in kg.



Figure 4.20: Adjust kg counter menu

[1] Spread fertiliser quantity display field

NOTICE

The **Adjust kg counter** function can only be carried out **if the machine is at a standstill and in a horizontal position**.

Adjusting the kg counter:

1. Open the **Weighing trip counter > Adjust kg-counter** sub-menu.
2. Press the **Start adjustment** button.
 - ▷ The applied fertiliser quantity has been transferred to the **Trip counter** in the **Total data counter**.
3. Press OK.
 - ▷ The value is adjusted.
 - ▷ The **Weighing trip counter** menu is displayed.

NOTICE

If the mineral fertiliser spreader is refilled, the **Adjust kg counter** function is carried out automatically!

4.10.3 Weigh quantity (weighing spreaders only)

In this menu, the hopper filling can be weighed and the parameters for flow factor control can be set ([See also “Calling up the remaining quantity during spreading \(weighing spreader only\)” on page -73](#)).

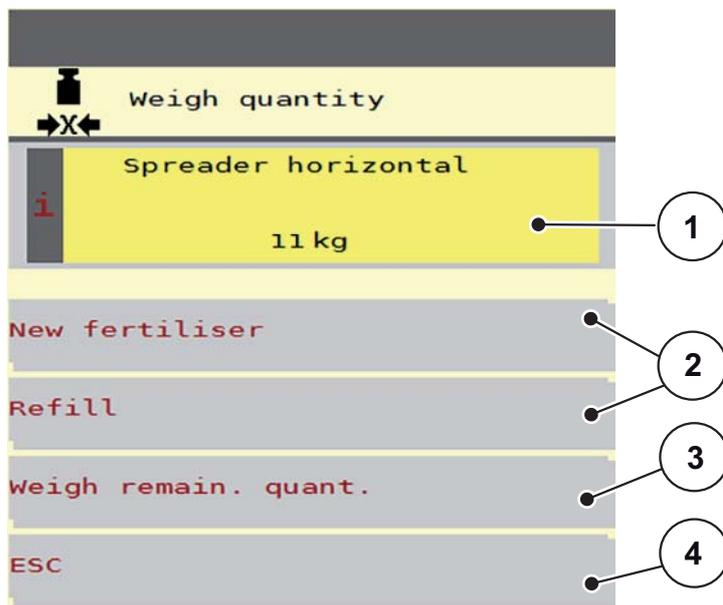


Figure 4.21: Weigh quantity menu

- [1] Weighed quantity in the hopper
- [2] Filling options
- [3] Weigh remaining quantity (only displayed in **AUTO km/h + Stat. kg** operating mode)
- [4] Cancel

NOTICE

The **Weigh quantity** function can only be carried out if the machine is at a **standstill** and in a **horizontal** position.

NOTICE

The **Weigh quantity** function is only effective if the system is in **AUTO km/h + AUTO kg** or **AUTO km/h + Stat. kg** operating mode.

On delivery of the machine control unit with the mineral fertiliser spreader, the **AUTO km/h + AUTO kg** operating mode is set by default.

For weighing the quantity, the following requirements have to be fulfilled:

- The machine is in a horizontal position and off the ground,
- the PTO is switched off,
- the tractor is at a standstill,
- the AXIS ISOBUS machine control system is switched on.

Weighing the quantity in the hopper:

1. Fill the hopper.
 - ▷ The **Weigh quantity** window is displayed.
 2. Select the type of filling at the display:
 - **Refill**: Spreading is continued with the same fertiliser.
 - **New fertiliser**: The flow factor is set to 1.0 and a new flow factor control is applied.
 - **ESC**: Cancel
- ▷ **The operating screen is displayed. The weighed remaining quantity can be displayed.**

▲ CAUTION



Cancelling the weighing function may lead to incorrect metering

The **ESC** button must not be pressed. This may lead to serious errors in application rate/metering.

- ▶ To confirm the weighing function, always select the type of filling.

NOTICE

In order to display the remaining quantity in the **operating screen**, the **kg rest** display option must be selected ([2.2.2: Display fields, page 7](#)).

Weighing remaining quantity (in AUTO km/h + Stat. kg operating mode only)

Refer to chapter [5.5: Automatic mode with static weighing \(AUTO km/h + Stat. kg\), page 84](#)

4.10.4 Tare the scales (weighing spreader only)

In this menu, the weight for the empty hopper is to be set to 0 kg.

The following requirements have to be fulfilled for zeroing the scales:

- the hopper is empty,
- the machine is at a standstill,
- the PTO is switched off,
- the machine is in a horizontal position and off the ground,
- the tractor is at a standstill.

Zeroing the scales:

1. Open the **Weighing/Trip count. > Zero scales** menu.
 2. Press the **Zero scales** button.
- ▷ **The weight for the empty scales is now set to 0 kg.**

NOTICE

Zero the scales before each use in order to ensure that the residual quantity is calculated correctly.

4.11 Operating lights (SpreadLight)



In this menu, the SpreadLight function can be activated and the spreading pattern can be monitored even in the night mode.

The operating lights are switched on and off via the machine control unit in the automatic and/or manual mode.

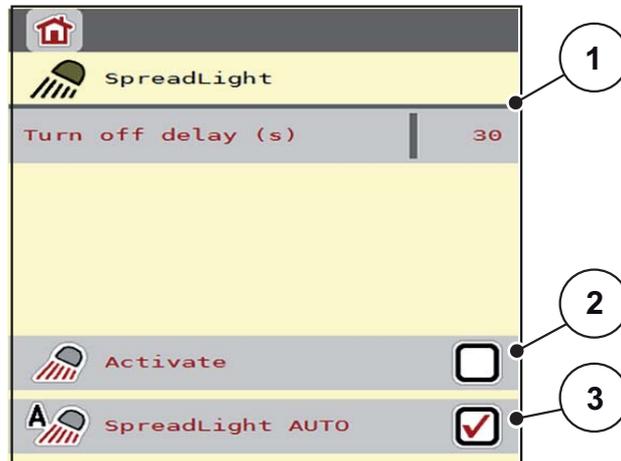


Figure 4.22: SpreadLight menu

- [1] Turn off delay
- [2] Manual mode: Switch on operating lights
- [3] Activate automatic mode

Automatic mode:

In the automatic mode, the operating lights are switched on as soon as the metering sliders open and the spreading process starts.

1. Open the **Main menu > SpreadLight** menu.
2. Check the menu entry **SpreadLight AUTO** [3].
 - ▷ The operating lights are switched on when the metering sliders open.
3. Enter a turn off delay [1] in seconds.
 - ▷ The operating lights will switch off after the entered delay when the metering sliders are closed.
 - Range from 10 to 100 seconds.
4. Delete the check mark in the menu entry **SpreadLight AUTO** [3].
 - ▷ The automatic mode is deactivated.

Manual mode:

In the manual mode, the operating lights can be switched on and off.

1. Open the **Main menu > SpreadLight** menu.
2. Tick the check box in the **Activate** [2] menu item.
 - ▷ The operating lights are switched on and remain on until the check box is unchecked or the menu is exited.



4.12 Hopper cover



⚠ WARNING



Danger of crushing and shearing due to components operated by an external force

The hopper cover will move without warning and can cause personal injury.

- ▶ Ensure that nobody is present in the hazard zone.

The AXIS-H EMC is equipped with an electrically operated hopper cover. During the refilling process at the end of the field, you can open and/or close the hopper cover via the control unit and an electrical drive.

NOTICE

The menu is used for activating the actuators for opening and/or closing the hopper cover exclusively. The machine control unit AXIS ISOBUS does not detect the exact position of the hopper cover.

- Monitor the movements of the hopper cover.

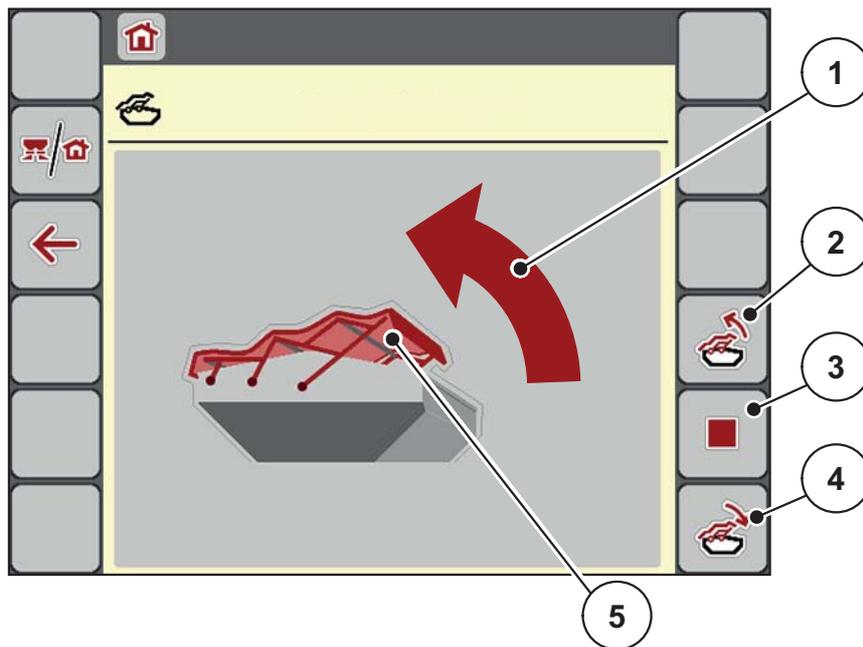


Figure 4.23: Hopper cover menu

- [1] Display of opening process
- [2] Open hopper cover
- [3] Stop process
- [4] Close hopper cover
- [5] Static display of hopper cover

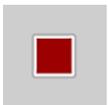
▲ CAUTION**Material damage due to insufficient clearance**

Opening and closing the hopper cover requires a sufficient clearance above the hopper. If the clearance is insufficient, the hopper cover may tear. The hopper cover lever may be damaged and the hopper cover may damage the environment.

- ▶ Ensure that a sufficient clearance above the hopper cover is given.

**Moving the hopper cover**

1. Press the **Menu** key.
2. Open the **Hopper cover** menu.
3. Press the **Open hopper cover** key.
 - ▷ During the movement, an arrow is displayed which indicates the **OPEN** direction.
 - ▷ The hopper cover will open entirely.
4. Insert fertiliser.
5. Press the **Close hopper cover** key.
 - ▷ During the movement, an arrow is displayed which indicates the **CLOSED** direction.
 - ▷ The hopper cover will be closed.



If required, you can stop the movement of the hopper cover by pressing the **Stop**-key. The hopper cover remains in the intermediate position until you close or open it entirely again.

4.13 Special function: Using the joystick

As an alternative to the settings in the operating screen of the ISOBUS terminal, you may also use a joystick. See [7: Special equipment, page 97](#). The joystick offered by RAUCH is preset with specific functions at the factory.

NOTICE

If you wish to use a different joystick, please contact your dealer.

- Only your dealer will be able to programme the keys for the joystick in your ISOBUS terminal.

Key assignment of the WTK joystick

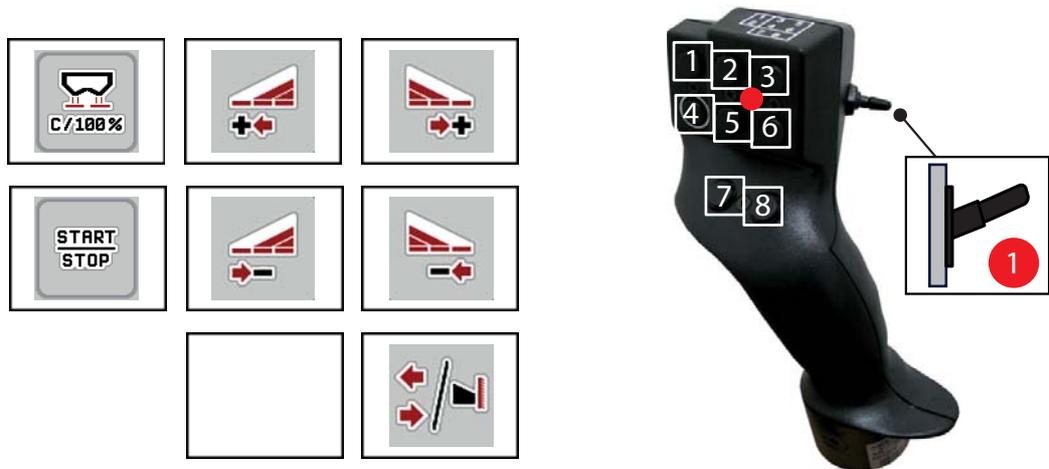


Figure 4.24: Key assignment, level 1 (LED is red)

- [1] Reset
- [2] Increase left section
- [3] Increase right section
- [4] Start/stop application rate regulation.
- [5] Reduce left section (minus)
- [6] Reduce right section (minus)
- [7] No function
- [8] Switching between sections/limited border spreading

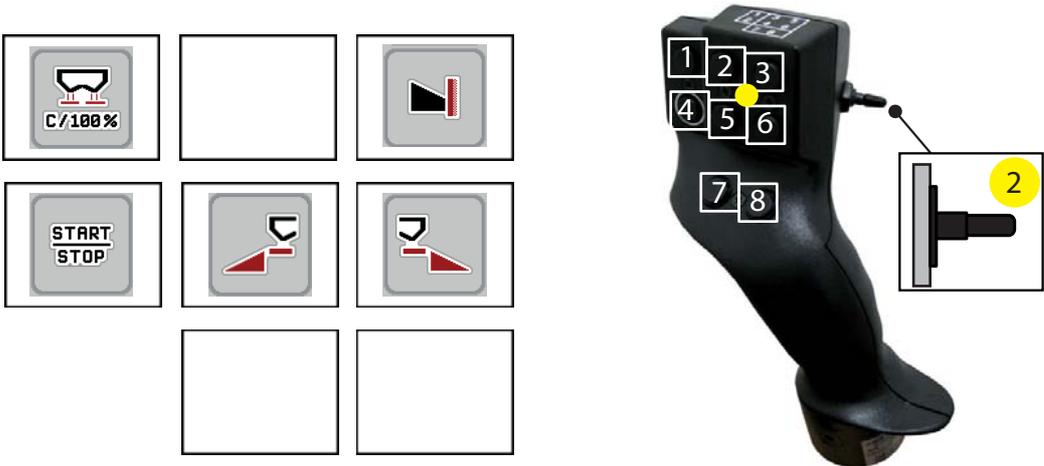


Figure 4.25: Key assignment, level 2 (LED is yellow)

- [1] Reset
- [2] No function
- [3] Limited border spreading on the right side
- [4] Start/stop application rate regulation.
- [5] Activate left spreading side
- [6] Activate right spreading side
- [7] No function
- [8] No function

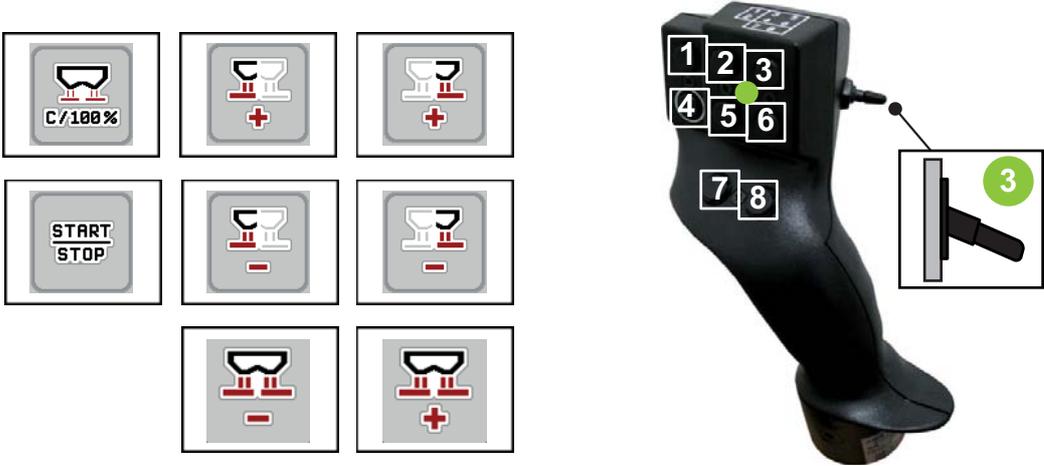


Figure 4.26: Key assignment, level 3 (LED is green)

- [1] Reset
- [2] Increase quantity on the left
- [3] Increase quantity on the right
- [4] Start/stop application rate regulation.
- [5] Reduce quantity on the left
- [6] Reduce quantity on the right
- [7] Reduce quantity on both sides
- [8] Increase quantity on both sides

5 Spreading operation with the machine control unit AXIS ISOBUS

The machine control unit AXIS ISOBUS helps you to make the right machine settings before starting to work. During spreading, the functions of the machine control unit are also active in the background. This allows you to monitor the quality of the fertiliser spreading.

5.1 Calling up the remaining quantity during spreading (weighing spreader only)

During spreading, the remaining quantity is continuously recalculated and displayed.



During spreading, i.e. with the metering slides open, the **trip counter** menu can be opened to display the remaining quantity currently in the hopper.

NOTICE

If the values are to be permanently monitored during spreading, freely assignable display fields in the operating screen can also be assigned with the **kg rest**, **ha rest** or **m rest** values, refer to chapter [2.2.2: Display fields, Page 7](#).

Working with the weighed remaining quantity, refilling the hopper:

1. Zero the scales.
See chapter [4.10.4: Tare the scales \(weighing spreader only\), Page 66](#).
2. Select the fertiliser type used.
See chapter [4.4.9: Fertiliser chart, Page 36](#).
3. Fill the hopper.
4. Weigh the fertiliser quantity in the hopper.
See chapter [4.10.3: Weigh quantity \(weighing spreaders only\), Page 64](#).
5. Start spreading.
When the hopper is empty, refill it.
6. Repeat steps 3 to 5.

NOTICE

If the hopper is **empty** and is filled with **less than 200 kg** of fertiliser, the flow factor is fixed and no flow factor control is implemented, see chapter [4.4.3: Flow factor, Page 28](#). Switch to the **AUTO km/h** operating mode.



NOTICE

If the hopper is filled and refilled with **less than 200 kg** of fertiliser, open the **Weighing trip counter > Weigh quantity** menu and press the **Refill** function.

5.2 TELIMAT

Attachment options for the AXIS W mineral fertiliser spreader

NOTICE

By default, the TELIMAT option is pre-set on the machine control unit!

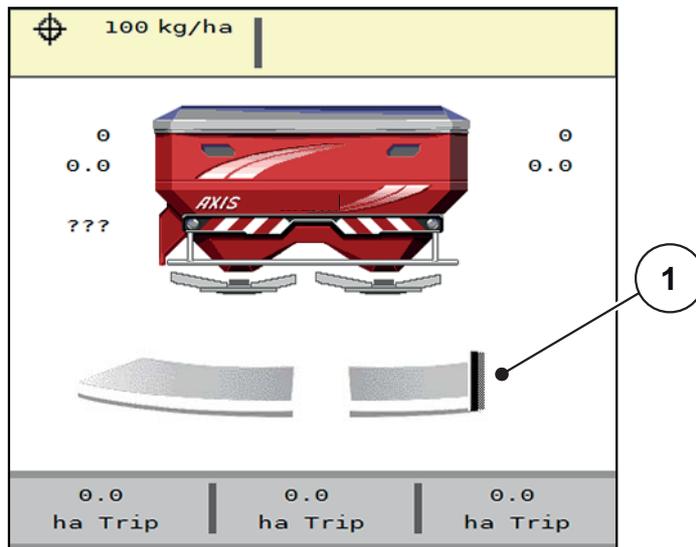


Figure 5.1: TELIMAT display

[1] TELIMAT icon

NOTICE

The TELIMAT symbol displayed is the same for all TELIMAT options!

TELIMAT with hydraulic remote control



The TELIMAT is hydraulically moved to its working or idle position. The application rate reduction can be activated or deactivated by pressing the **TELIMAT** function key in the operating screen. Depending on the status, the **TELIMAT symbol** is displayed or hidden.

TELIMAT with hydraulic remote control and TELIMAT sensors

If TELIMAT sensors are connected and activated, the **TELIMAT symbol** is displayed as soon as the TELIMAT has been hydraulically set to the operating position. If the TELIMAT is reset to the idle position, the **TELIMAT symbol** is hidden.

The sensors monitor the TELIMAT adjustment and automatically activate or deactivate the application rate reduction. The **TELIMAT** function key is deactivated for this option.

If the status of the TELIMAT unit cannot be detected for more than 5 seconds, alarm message 14 will be displayed. Refer to chapter [6.1: Alarm message meanings. Page 93.](#)



Figure 5.2: TELIMAT alarm message display

TELIMAT with electrical remote control

⚠ CAUTION



Risk of injury due to automatic TELIMAT adjustment

After pressing the **TELIMAT** function key, the unit automatically moves to the limited border spreading position by using an actuator. This may cause injury and property damages.

- ▶ Before pressing the **T key**, make sure that no one is in the hazard zone of the machine.



By pressing the **TELIMAT** function key, the electrical TELIMAT moves to the limited border spreading position. During configuration, a **? symbol** is displayed at the machine control unit and disappears once the working position has been reached. Additional sensor monitoring of the TELIMAT position is not necessary as actuator monitoring is integrated.

If the TELIMAT is blocked, alarm 23 is displayed. Refer to chapter [6.1: Alarm message meanings. Page 93.](#)

5.3 Working with sections

5.3.1 Displaying the spreading type in the operating screen

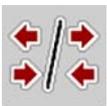
The machine control unit offers 4 different spreading types for the spreading operation of the AXIS-M machine. These settings can be made directly in the operating screen. During the spreading operation, you can change over between the spreading types in order to ideally adapt to the field requirements.

Button	Spreading type
	Activate section on both sides.
	Section possible on the left spreading side, limited border spreading possible on the right spreading side.
	Normal spreading on the left spreading side, section on the right spreading side.
	Normal spreading possible on the left spreading side, limited border spreading possible on the right spreading side.

1. Press the function key several times until the desired spreading type is displayed.

5.3.2 Spreading with reduced sections

You can spread with sections on one or both sides and thus adapt the entire spreading width to the field requirements. Each spreading side can be adjusted in 4 steps.



- Press the **Change limited border spreading/spreading sides** key.

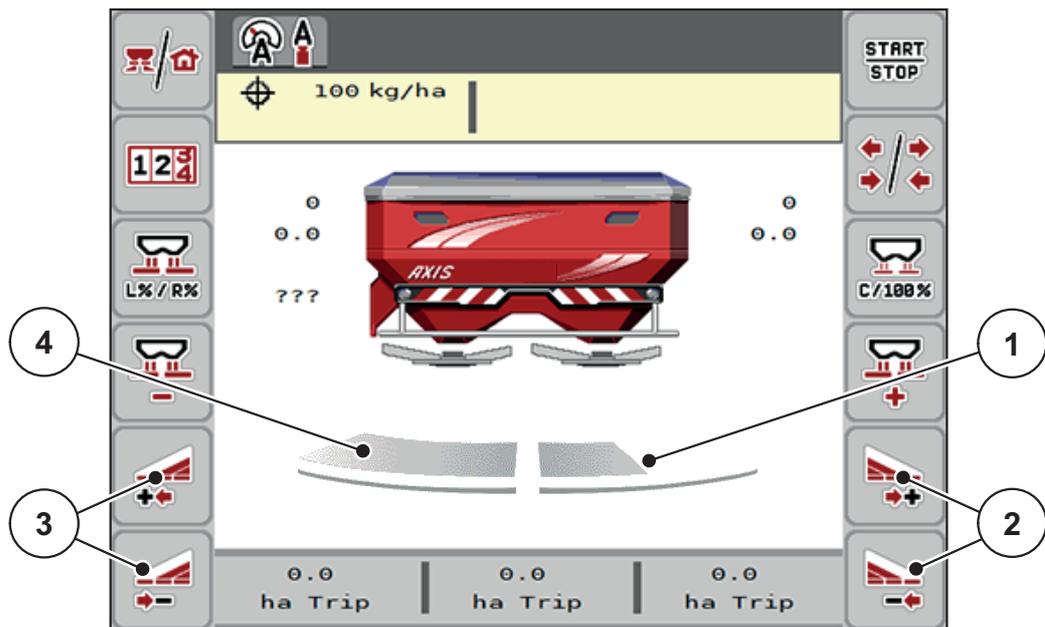


Figure 5.3: Operating screen with sections

- [1] Right spreading side is reduced to several section steps.
- [2] Function keys for increasing or reducing the spreading width on the right
- [3] Function keys for increasing or reducing the spreading width on the left
- [4] Left section will spread over the entire half

NOTICE

- Each spreading side can be reduced or increased in steps.
- **AXIS.2 only:** Section control is possible from the outside to the inside or vice versa. See [Figure 5.4](#).

1. Press the **Reduce left spreading width** or the **Reduce right spreading width** function key.
 - ▷ The section of the spreading side will be reduced by one step.
2. Press the **Increase left spreading width** or the **Increase right spreading width** function key.
 - ▷ The spreading side section will be increased by one step.

NOTICE

The sections are not graded proportionally. The VariSpread spreading width wizard automatically adjusts the spreading widths.

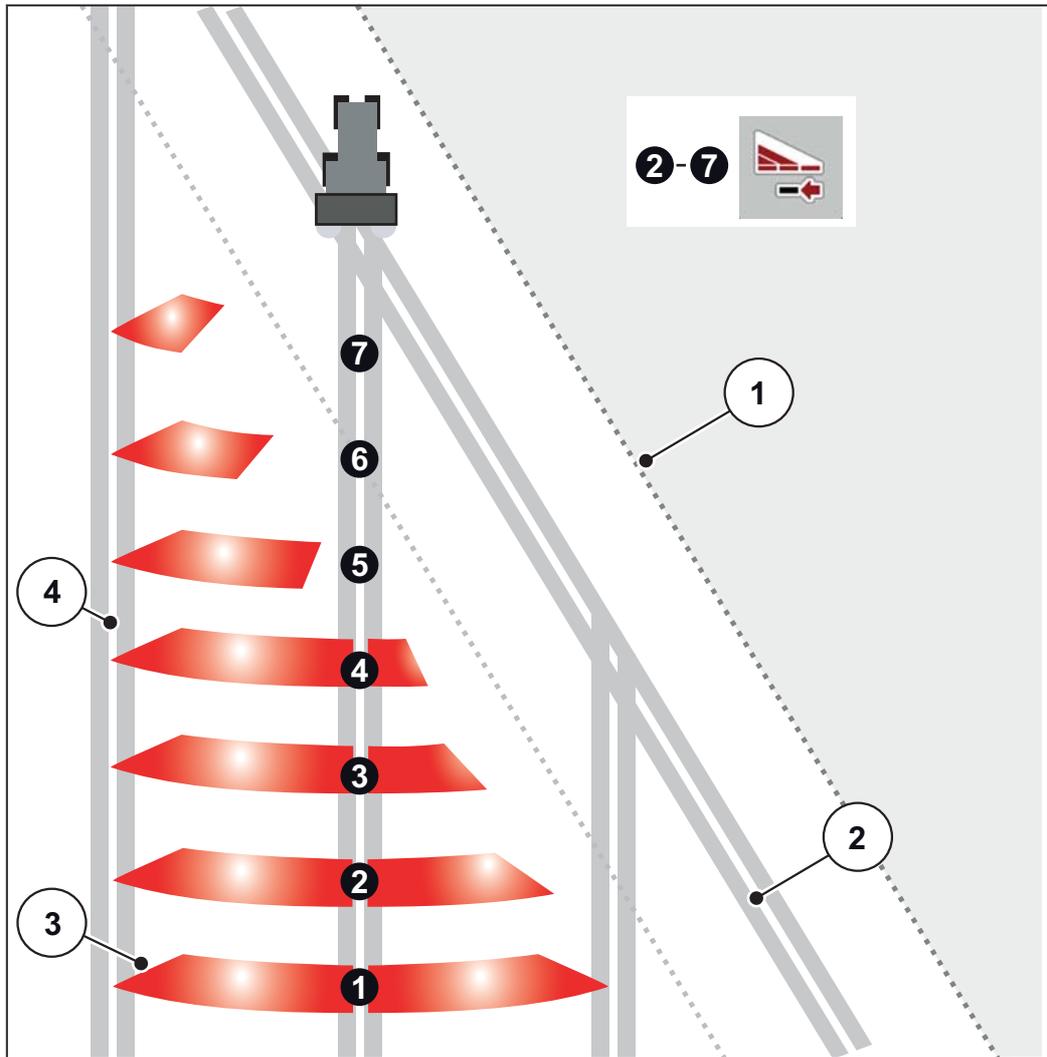


Figure 5.4: Automatic section control

- [1] Field border
- [2] Headlands tramline
- [3] Sections 1 to 4: successive section reduction on the right for AXIS.1 and AXIS.2.
Sections 5 to 7: further section reduction on the right for AXIS.2
- [4] Tramline in the field

5.3.3 Spreading operation with one section and in boundary spreading mode

During spreading operation, the sections can be changed gradually and limited border spreading can be deactivated. The figure below shows the operating screen with activated limited border spreading and activated section.

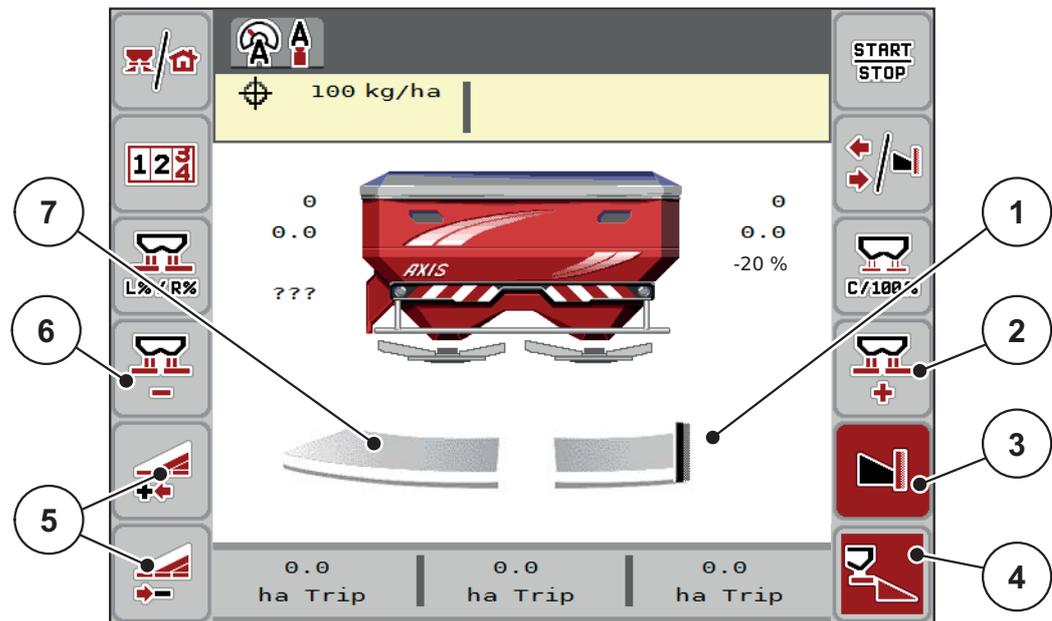


Figure 5.5: Operating screen, one section on the left, limited border spreading side on the right

- [1] Spreading side on the right in limited border spreading mode
 - [2] Increase the metering slide opening on the boundary spreading side.
 - [3] Boundary spreading mode is activated
 - [4] Right spreading side is activated.
 - [5] Reduce or increase left section.
 - [6] Reduce the metering slide opening on the boundary spreading side.
 - [7] Left section adjustable in 4 steps
- The spreading quantity on the left is set to the full working width.
 - The **Right spreading side** function key [4] is activated.
 - The **Right boundary spreading** function key [3] has been pressed; the boundary spreading function is activated and the application rate has been reduced by 20 %.
 - The fertiliser is spread over half of the working width on the right.
 - Press the **Reduce left spreading width** function key [5] in order to reduce the section by one step.
 - Press the **C/100%** function key to immediately restore the full working width.
 - Press the **Right boundary spreading** function key [3] to deactivate boundary spreading.

5.4 Spreading with automatic operating mode (AUTO km/h + AUTO kg)

NOTICE

The **AUTO km/h + AUTO kg** operating mode is only displayed if the **AXIS W** mineral fertiliser spreader has been configured at the factory.

With the **AXIS-M W** and **AXIS-M EMC** machines, the **AUTO km/h + AUTO kg** operating mode is preset at the factory by default.

5.4.1 Automatic mode with automatic weighing



The **AUTO km/h + AUTO kg** operating mode enables a continuous weighing of fertiliser quantities in the hopper during the spreading operation. The flow factor regulation is corrected at regular intervals on the basis of this information. This way, fertiliser metering can be optimised.

Precondition for spreading:

- The **AUTO km/h + AUTO kg** operating mode is active (refer to [4.5.1: AUTO/MAN mode, Page 41](#)).

NOTICE

If a fertiliser quantity of less than 200 kg is filled into an empty hopper, change to the **AUTO km/h + Stat. kg** or **AUTO km/h** mode.

Proceed as follows:

1. Switch on the control unit AXIS ISOBUS.
2. Fill the hopper with fertiliser.
 - ▷ The **Weigh quantity** window is displayed.
3. Weigh fertiliser quantity via **Refill** or **New fertiliser**.

Refer to chapter [4.10.3: Weigh quantity \(weighing spreaders only\), Page 64](#).

- **Refill:**
Continue spreading with the same fertiliser.
The flow factor setting is retained.
 - **New fertiliser:** The flow factor is set to 1.0; a new flow factor control will follow.
- ▷ **The left fertiliser quantity is increased by the refill quantity.**

⚠ CAUTION



Incorrect metering by pressing the ESC key

The ESC key must not be pressed. This may lead to serious errors in application rate/metering.

- ▶ Always press the **Enter key** in order to confirm the weighing function.
-



4. Press **Start/Stop**.
- ▷ **The spreading starts.**

NOTICE

On uneven, hilly terrain, application rates of less than 30 kg/min are to be applied in **AUTO km/h + Stat. kg** (weighing spreaders) or **AUTO km/h** (other mineral fertiliser spreaders) operating mode.

NOTICE

If, after confirmation of the **Weigh quantity** window, the fertiliser settings are changed before spreading is started, these changes to the settings must be made with the spreader stopped and in horizontal position.



NOTICE

To change the fertiliser settings while driving (e.g. to the field), open the **Weighing trip counter > Weigh quantity** menu and press **New fertiliser**.

NOTICE

We recommend displaying the flow factor in the operating screen (refer to [2.2.2: Display fields, Page 7](#)) in order to monitor the flow factor control while spreading.



NOTICE

In case of any problems with flow factor control (clogging, ...), open the **Weighing trip counter > Weigh quantity** menu and press **New fertiliser**.

5.4.2 Mass flow control with the M EMC function

Mass flow is measured separately on both spreading disc sides. Thus, deviations to the specified application rate can be immediately corrected.

The M EMC function requires the following machine data for mass flow control:

- PTO speed
- Spreading disc type

A PTO speed between 450 and 650 rpm is possible.

- **The desired speed should remain constant during spreading (+/- 10 rpm).** High control quality can therefore be ensured.
- The idle measurement is **only** possible if the actual PTO speed deviates by **max. +/- 10 rpm** from the entry in the **PTO** menu. Outside of this range, idle measurement is not possible.

Precondition for spreading:

- The **AUTO km/h + AUTO kg** operating mode is active (refer to [4.5.1: AUTO/MAN mode, Page 41](#)).
1. Fill the hopper with fertiliser.
 2. Adjust fertiliser settings:
 - Application rate (kg/ha)
 - Working width (m)
 3. Enter the PTO speed in the corresponding menu.
[See also "PTO shaft" on page -50.](#)
 4. Select the spreading disc type used in the corresponding menu.
[See also "Spreading disc type" on page -50.](#)
 5. Switch on PTO shaft.
 6. Set PTO shaft to the PTO speed entered.
 - ▷ The **Idle measurement** screen is displayed.

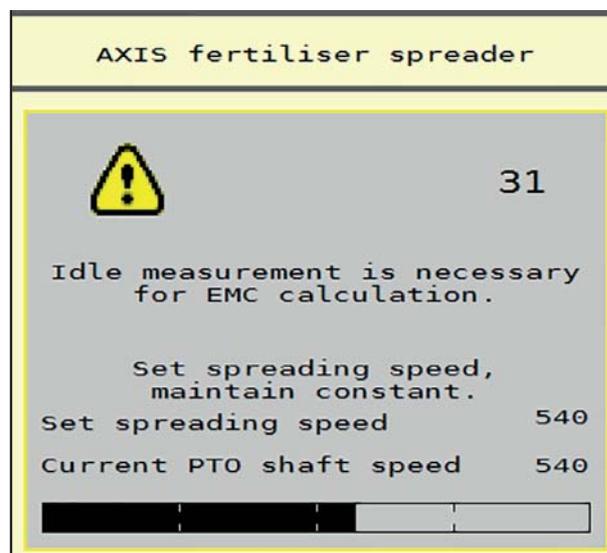


Figure 5.6: Idle measurement information screen

7. Wait until the progress bar has entirely passed through.
 - ▷ Idle measurement is finished.
 - ▷ Idle time is reset to 20 min.

8. Press the **Start/Stop** key.

▷ **The spreading starts.**

As long as the PTO shaft is operating, a new idle measurement will automatically start after the expiration of the idle time every 20 minutes.

Under certain conditions, idle measurement is required to capture new reference data before you continue spreading.

As soon as idle measurement during spreading is required, the information screen will appear.

NOTICE

As soon as the metering slides close (e.g. in the headlands or by pressing the **Start/Stop** key), the **M EMC function** will start an idle measurement in the background (without information screen).

- To this end, the PTO speed must remain at the preset value during idle measurement!

NOTICE

If you want to monitor the time until the next idle measurement, you can also assign the freely selectable display fields in the operating screen with **Idle time**, see chapter [2.2.2: Display fields, Page 7](#).

NOTICE

When starting and changing the type of spreading disc, a new idle measurement is mandatory!

In case of unusual flow factor changes, the idle measurement must be started **manually**.

Precondition:

- Spreading is stopped (Start/Stop key or both sections deactivated).
- The operating screen is displayed.
- The PTO speed is at least 400 rpm.
- In the **main menu**, press the idle measurement key.
 - ▷ The idle measurement is started manually.



5.5 Automatic mode with static weighing (AUTO km/h + Stat. kg)



The **AUTO km/h + Stat. kg** operating mode is to be used for smaller spreading volumes or for working on hillside terrain **EXCLUSIVELY**.

1. Switch on the AXIS ISOBUS.



2. Open the **Weighing trip counter > Weigh quantity** menu.

3. Weigh fertiliser quantity via **Refill** or **New fertiliser**.

Refer to chapter [4.10.3: Weigh quantity \(weighing spreaders only\), Page 64](#).

4. Configure the fertiliser settings:

- Application rate (kg/ha)
- Working width (m)

5. Insert fertiliser.

▷ The **Weigh quantity** window is displayed.

6. Select the desired type of filling:

Refill: Continue spreading with the same fertiliser. All saved values (flow factor) are retained.

New fertiliser: The flow factor is reset to 1.0. If necessary, the required flow factor value can be entered subsequently.

7. Determine the flow factor from the provided fertiliser chart or according to empirical values.

8. Enter the flow factor manually.

9. Press **Start/Stop**.

▷ The spreading starts.

10. After at least 150 kg of fertiliser spread, press the **Start/Stop** key.

11. Stop the tractor on a plain surface.

The machine must be horizontal.



12. Open the **Weighing trip counter > Weigh quantity** menu.

13. Select the **Weigh remaining quantity** selection field.

▷ The software compares the spread quantity with the actual residual quantity in the hopper.

▷ The software recalculates the flow factor.

14. Define the flow factor.

Press **Confirm flow factor** in order to apply the **newly calculated** flow factor.

Press the **ESC key** in order to apply the **previously saved** flow factor.



NOTICE

To change the fertiliser settings while driving (e.g. to the field), open the **Weigh quantity** menu in standstill before spreading.

5.6 Spreading in the AUTO km/h operating mode

This operating mode is applied by default for machines **without weighing system**.



1. Configure the fertiliser settings:
 - Application rate (kg/ha)
 - Working width (m)
2. Insert fertiliser.

NOTICE

In order to achieve an optimum spreading result with the **AUTO km/h** operating mode, a calibration is to be carried out before starting the spreading.

3. Carry out a calibration test to determine the flow factor
or
manually enter the flow factor from the fertiliser chart.
4. Press **Start/Stop**.
▷ **The spreading starts.**



5.7 Spreading in the MAN km/h operating mode



If there is no forward speed signal, the MAN km/h operating mode is active.

1. Switch on the AXIS ISOBUS machine control unit.
2. Open the **Machine settings > AUTO/MAN mode** menu.
3. Select **MAN km/h** in the menu.
4. Enter the forward speed.
5. Press **OK**.
6. Configure the fertiliser settings:
 - Application rate (kg/ha)
 - Working width (m)
7. Insert fertiliser.

NOTICE

In order to achieve an optimum spreading result in the MAN km/h operating mode, a calibration is to be carried out before starting the spreading.

8. Carry out a calibration test to determine the flow factor
or
manually enter the flow factor from the fertiliser chart.
 9. Press the **Start/Stop** key.
- ▷ **The spreading starts.**



NOTICE

Always observe the set speed during spreading.

5.8 Spreading in the MAN scale operating mode



The **MAN scale** operating mode enables manual adjustment of the metering slide opening during spreading.

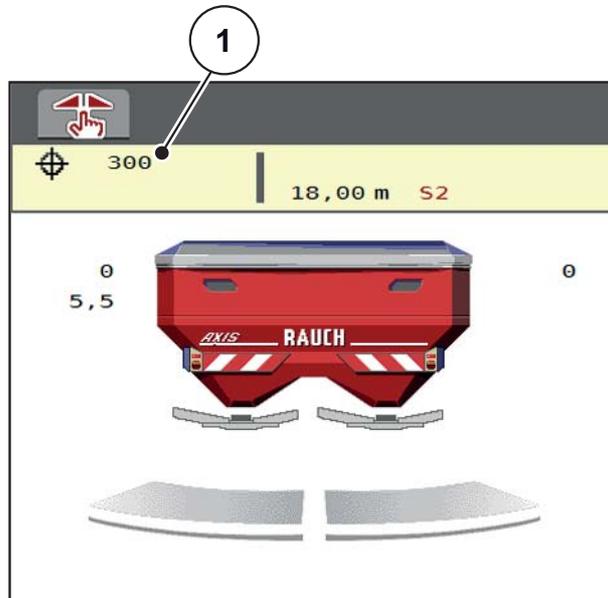


Figure 5.7: MAN scale operating screen

[1] Display of current metering slider scale position

1. Switch on the AXIS ISOBUS machine control unit.
2. Open the **Machine settings > AUTO/MAN mode** menu.
3. Select **MAN scale** in the menu.
4. Enter the target value for the metering slide opening.
5. Press **OK**.
6. Switch to the operating screen.
7. Press **Start/Stop**.



▷ **The spreading starts.**

8. To change the metering slider opening, press the **MAN+** or **MAN-** function key.



MAN+ to increase the metering slider opening or
MAN- to reduce the metering slider opening.

NOTICE

In order to achieve an optimum spreading result in manual mode as well, it is recommended to apply the metering slide opening and forward speed values provided in the fertiliser chart.

5.9 GPS Control



The AXIS ISOBUS machine control unit can be combined with a GPS device. Various data is exchanged between both devices to automate control.

The ISOBUS terminal with SectionControl transmits the specifications on the opening and closing of metering sliders to the machine control unit.

The symbol **A** next to the spreading wedges indicates that the automatic function is enabled. The ISOBUS terminal with SectionControl opens and closes the individual sections depending on the respective position in the field. The spreading starts only after pressing **Start/Stop**.

▲ WARNING



Risk of injury due to ejected fertiliser

The SectionControl function automatically starts the spreading operation without warning. Ejected fertiliser may lead to injury of the eyes and nasal mucous membrane. There is also a risk of slipping.

- ▶ Ensure that nobody is present in the hazard zone during the spreading operation.

During spreading, **one or both spreading sides** or **individual sections** can be closed at any time. If the sections are activated for automatic operation again, the last state requested is restored.

If the ISOBUS terminal with SectionControl is changed from automatic to manual mode, the machine control unit closes the metering slides.

NOTICE

To use the GPS Control functions of AXIS ISOBUS, the **GPS Control** setting must be activated in the **Machine settings** menu.

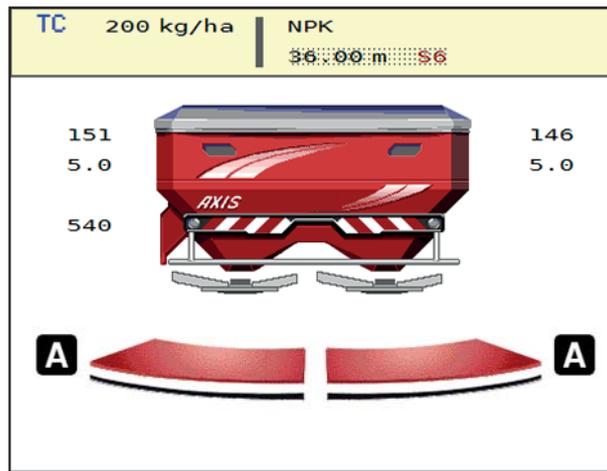


Figure 5.8: Spreading operation display in the operating screen with GPS Control

The **OptiPoint** function calculates the optimal on and off points for spreading in the headlands based on the settings in the machine control unit; see [4.4.7: Calculate OptiPoint, Page 33](#).

Turn-on distance (m)

Turn on dist. refers to the turn on distance (Figure 5.9 [A]) relating to the field border (Figure 5.9 [C]). At this position in the field, the metering sliders open. This distance depends on the type of fertiliser and represents the ideal turn on distance for optimized fertiliser distribution.

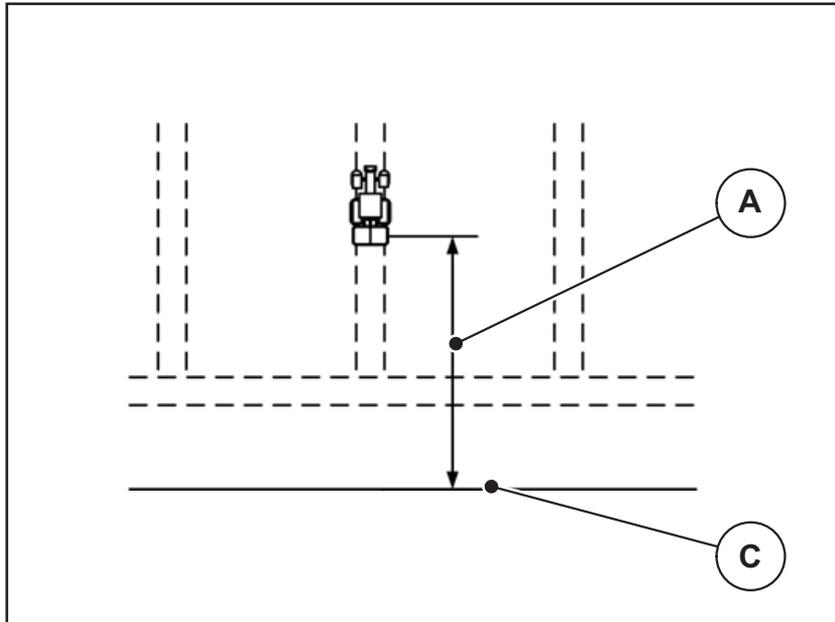


Figure 5.9: Distance on (in relation to field border)

- [A] Turn on distance
- [C] Field border

To change the turn-on position in the field, the **Turn on dist.** value has to be adjusted.

- A lower distance value means that the turn on position is closer to the field border.
- A greater value means that the turn on position is closer to the centre of the field.

Turn-off distance (m)

Turn off dist. refers to the turn off distance (Figure 5.10 [B]) relating to the field border (Figure 5.10 [C]). At this position in the field, the metering sliders start to close.

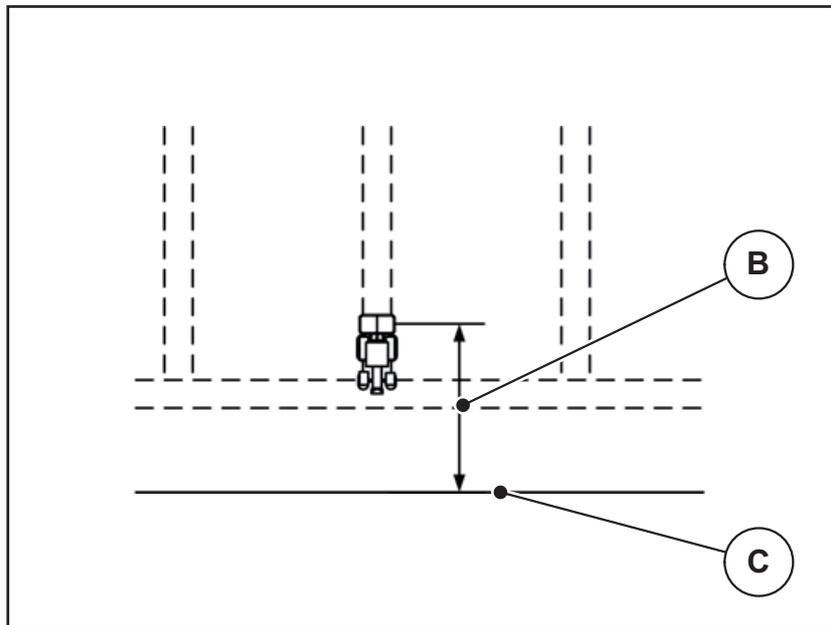


Figure 5.10: Turn-off distance (relating to field border)

- [B] Turn off distance
[C] Field border

To change the turn off position in the field, the **Turn off distance** value has to be adjusted accordingly.

- A lower value means that the turn off position is closer to the field border.
- A greater value means that the turn off position is closer to the centre of the field.

If you wish to turn beyond the headlands track, enter a greater distance in **Turn off distance**.

Here, the adjustment must be as low as possible so that the metering sliders close as soon as the tractor enters the headlands track. An adjustment of the switch off distance may lead to an insufficient fertilisation in the area of the switch off position in the field.

6 Alarm messages and possible causes

Various alarm messages can be displayed on the AXIS ISOBUS machine control unit display.

6.1 Alarm message meanings

No.	Message on display	Meaning <ul style="list-style-type: none"> ● Possible cause
1	Fault in dosing system. Stop!	The metering system actuator cannot reach the target value. <ul style="list-style-type: none"> ● Blockage ● No position feedback
2	Maximum outlet reached! Speed or application rate too high	Metering slider alarm <ul style="list-style-type: none"> ● The maximum metering opening is reached. ● The set application rate (+/- quantity) exceeds the maximum metering opening.
3	Flow factor is outside limits.	The flow factor must be within the range between 0.20 and 1.90 <ul style="list-style-type: none"> ● The newly calculated or entered flow factor is outside the range.
4	Hopper left empty.	The left level sensor reports "empty". <ul style="list-style-type: none"> ● The left hopper is empty.
5	Hopper right empty.	The right level sensor reports "empty". <ul style="list-style-type: none"> ● The right hopper is empty.
7	Data will be deleted! Delete = START Cancel = ESC	Safety alarm to prevent the unintentional deletion of data.
8	Min. quantity (150 kg) not achieved, old factor valid.	Flow factor calculation not possible. <ul style="list-style-type: none"> ● The AUTO km/h + Stat. kg operating mode is selected. ● The application rate is too low to calculate the new flow factor when the remaining quantity is weighed. ● The old flow factor is maintained.
11	Flow factor Min. setting = 0.40 Max. setting = 1.90	Reference to the value range of the flow factor . <ul style="list-style-type: none"> ● Entered value is not permitted.
14	Error by setting TELIMAT.	Alarm for the TELIMAT sensor. This error message is displayed if the TELIMAT status is not detected for more than 5 seconds.

No.	Message on display	Meaning <ul style="list-style-type: none"> ● Possible cause
15	Memory full. Delete one private fertiliser chart.	A maximum of 30 fertiliser charts can be saved. <ul style="list-style-type: none"> ● No additional saving possible.
16	Approach drop point Yes = Start	For machines with electrical drop point actuators only: Safety query before the drop point is automatically approached. <ul style="list-style-type: none"> ● Change a fertiliser in the fertiliser chart if this changes the drop point. ● Calibration test ● Fast emptying ● Diagnosis
17	Error by setting drop point.	The actuator for the drop point setting cannot reach the target value it is to be moved to. <ul style="list-style-type: none"> ● Blockage. ● No position feedback.
18	Drop point blocked	Actuator overloaded.
19	Defect by setting drop point.	Actuator defective.
20	Error on LIN bus participant: [Name].	Communication problem. <ul style="list-style-type: none"> ● Remove actuator. ● Cable breakage.
21	Spreader overloaded!	The mineral fertiliser spreader is overloaded. <ul style="list-style-type: none"> ● Too much fertiliser in the hopper
23	Error by setting TELIMAT	The TELIMAT setting actuator cannot reach the target value it is to be moved to. <ul style="list-style-type: none"> ● Blockage. ● No position feedback.
24	Error by setting TELIMAT	Actuator overloaded.
25	Defect by setting TELIMAT	TELIMAT actuator defective.
32	Externally controlled parts may move. Risk of injury through squeezing and shearing! Direct ALL persons out of the danger zone. Read the instruction manual. Confirm with ENTER	If the machine control unit is activated, components may move unexpectedly. <ul style="list-style-type: none"> ● Follow the displayed instructions only if all risks have been eliminated.
35	Flow factor has changed dramatically, please check!	The flow factor must lie within a range of 0.50 - 1.80 . <ul style="list-style-type: none"> ● The newly calculated or entered flow factor is outside the range.

No.	Message on display	Meaning ● Possible cause
36	Weighing quantity impossible. Machine must stop.	Alarm message during weighing. ● The Weigh quantity function can only be carried out if the machine is at a standstill and in a horizontal position.
37	Adjusting kg counter impossible. Machine must stop.	Alarm message on synchronisation attempt. ● Synchronisation can only be carried out if the machine is at a standstill and in a horizontal position.
45	Error M-EMC sensors. EMC control deactivated!	The sensor does not send any signals ● Cable breakage ● Defective sensor
46	Spreading speed error. Observe spreading speed of 450..650 rpm!	The PTO speed is outside the range for the M EMC function.
47	Left dosing error, hopper empty, outflow blocked!	● Hopper empty ● Outlet blocked
48	Right dosing error, hopper empty, outflow blocked!	● Hopper empty ● Outlet blocked
49	Idle measurement implausible. EMC control deactivated!	● Defective sensor ● Defective gearbox
50	Idle measurement impossible. EMC control deactivated!	PTO speed not permanently stable
52	Error at hopper cover	The position of the hopper cover could not be reached ● Blockage ● Defective actuator
53	Defect at hopper cover	The position of the hopper cover could not be reached ● Blockage ● Defective actuator
57	Hopper cover blocked	The hopper cover actuator cannot reach the specified target value. ● Blockage ● No position feedback
54	Change TELIMAT position	The TEILMAT position does not correspond to the state notified by GPS Control.
56	GPS-Control Fault in dosing system. Stop!	Incorrect switching detected. The machine enters the default state. ● Restart SectionControl at the GPS terminal.

6.2 Acknowledging an alarm message

An alarm message is highlighted in the display and displayed with a warning symbol.

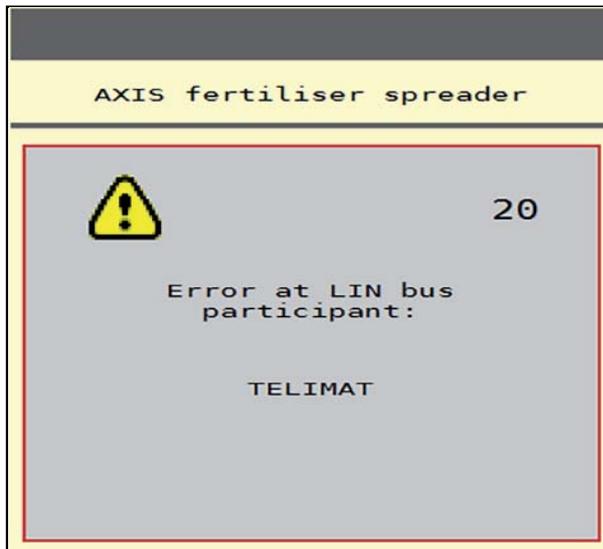


Figure 6.1: Alarm message (example)

1. Correct the cause of the alarm message.

Observe the operator's manual of the machine and section [6.1: Alarm message meanings, page 93](#).

2. Press the **ACK** key.

▷ **The alarm message is cancelled.**



NOTICE

Acknowledging the alarm message can differ depending on the ISOBUS terminal used.

You can use various keys to acknowledge other messages with a yellow frame:

- Enter
- Start/Stop

For this purpose, follow the instructions on screen.

7 Special equipment

Illustration	Designation
 A black cable with a red cylindrical sensor head and a black connector at the other end.	Level sensor for AXIS
 A black cable with a white rectangular receiver unit in the middle. The unit has the text 'AccoSat' and 'www.mso-technik.de' on it, along with a black arrow pointing left.	GPS cable and receiver
 A black cable with a blue connector at one end and a black connector at the other.	TELIMAT sensor AXIS
 A black joystick with a white cable and a black connector at the end.	Joystick

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Terms/conditions of warranty

RAUCH units are manufactured with modern production methods and with the greatest care and are subject to numerous inspections.

Therefore RAUCH offers a 12-month warranty subject to the following conditions:

- The warranty begins on the date of purchase.
- The warranty covers material and manufacturing faults. Our liability for third-party products (hydraulic system, electronics) is limited to the warranty of the manufacturer of the equipment. During the warranty period, manufacturing and material faults are corrected free of charge by replacement or repair of the affected parts. Other rights extending beyond the above, such as claims for conversion, reduction or replacement for damages that did not occur in the object of supply are explicitly excluded. Warranty services are provided by authorised workshops, by RAUCH factory representatives or the factory.
- The following are excluded from coverage by the warranty: natural wear, dirt, corrosion and all faults caused by improper handling and external causes. The warranty is rendered void if the owner carries out repairs or modifications to the original state of the supplied product. Warranty claims are rendered void if RAUCH original spare parts were not used. Therefore, the directions in the operating manual must be observed. In all cases of doubt contact our sales representatives or the factory directly. Warranty claims must be submitted to the factory by 30 days at the latest after occurrence of the problem. The date of purchase and the serial number must be indicated. If repairs under the warranty are required, they must be carried out by the authorised workshop only after consultation with RAUCH or the company's appointed representatives. The warranty period is not extended by work carried out under warranty. Shipping faults are not factory faults and therefore are not part of the warranty obligation of the manufacturer.
- No claims for compensation for damages that are not part of RAUCH machines themselves will be accepted. This also means that no liability will be accepted for damage resulting from spreading errors. Unauthorised modifications of RAUCH machines may result in consequential damage, for which the manufacturer will not accept any liability. The manufacturer's liability exclusion will not apply in case of wilful intent or gross negligence by the owner or a senior employee, and in cases where – according to the product liability law – there is liability for personal injury or material damage to privately used objects in the event of defects in the supplied product. It will also not apply in the event that assured properties are absent, if the purpose of the assured properties was to protect the purchaser against damage that does not involve the supplied product itself.

RAUCH Streutabellen
RAUCH Fertilizer Chart
Tableaux d'épandage RAUCH
Tabele wysiewu RAUCH
RAUCH Strooitabellen
RAUCH Tabella di spargimento
RAUCH Spredetabellen
RAUCH Levitystaulukot
RAUCH Spridningstabellen
RAUCH Tablas de abonado



<http://www.rauch-community.de/streutabelle/>



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