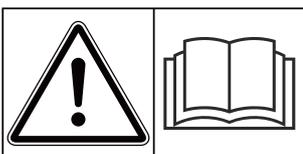


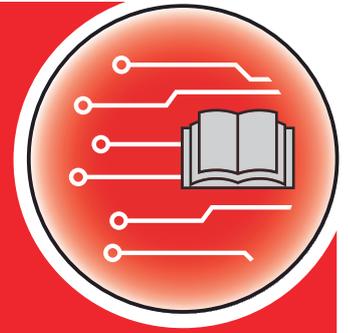
Complementary instructions



**Please read carefully
before using the
machine!**

Keep for future use

This operator's and assembly manual is an integral part of the machine. Suppliers of new and second-hand machines are required to document in writing that the operator's and assembly manual was delivered with the machine and handed over to the customer.



QUANTRON-A AXIS/MDS

Version 3.52.00

5902662-h-en-1021

Original instructions

Dear customer,

By purchasing the QUANTRON-A control unit for the AXIS and MDS fertilizer spreader, you have shown confidence in our product. Thank you very much! We want to justify this confidence. You have purchased a powerful and reliable machine control unit.

However, in case unexpected problems arise, our customer service department is always there for you.



Please read this operator's manual as well as the operator's manual for the machine carefully before using the machine, and follow the advice given.

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



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

The control unit QUANTRON-A has been calibrated at the factory for the mineral fertilizer spreader with which it was supplied.. It cannot be connected to another machine without new calibration.

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 of control unit:
- Serial number and year of manufacture of the machine:

Technical improvements

We continuously strive to improve our products. For this reason, we reserve the right to make any improvements and changes to our machine that we consider necessary without notice. We do not accept any 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 control unit.

The manual contains important instructions for **safe, proper**, and economic **use** and **maintenance** of the control unit. Compliance with its stipulations helps to **avoid risks**, reduce repair costs and downtime, and to increase the reliability and service life of the machine controlled with it..

The operator's manual must be kept in an easily accessible location close to where the control unit is used (e.g., in the tractor).

The operator's manual does not replace **your own responsibility** as operator and operational staff of the control unit.

1.2 Meaning of warnings

The warnings in the operator's manual are classified according to the severeness of the risk and the probability of its occurrence.

The warning symbols draw attention to the unavoidable residual risks inherent in the design to which users of the machine are exposed. The warnings used are structured as follows:

Symbol + **signal word**

Explanation

Level of danger of warnings

The level of danger is indicated in the signal word. The levels of danger are classified as follows:

 DANGER!
<p>Type and source of danger</p> <p>This warning warns of a danger posing an immediate threat to the health and life of people.</p> <p>Ignoring these warnings will result in severe injury or death.</p> <ul style="list-style-type: none">▶ Always observe the measures described to prevent this danger.

 WARNING!
<p>Type and source of danger</p> <p>This warning warns of a potentially dangerous situation for personal health.</p> <p>Ignoring these warnings leads to severe injury.</p> <ul style="list-style-type: none">▶ 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.

Ignoring these warnings leads to injury.

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

NOTICE!**Type and source of danger**

This warning warns of material and environmental damage.

Ignoring these warnings will result in damage to the machine and to the environment.

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



This is a note:

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

1.3 Notes on text descriptions

1.3.1 Instructions and procedures

Steps that the operator must carry out are shown as follows.

- ▶ Instruction for action step 1
- ▶ Instruction for action step 2

1.3.2 Lists

Lists without a specific sequence are shown as lists with bullet points:

- Property A
- Property B

1.3.3 Menu hierarchy, keys and navigation

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

The menus list **submenus and/or menu items** where settings can be made (selection lists, text or number entries, starting a function).

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

- System/Test > Test/diagnosis > Voltage means that you can reach the Voltage menu item via the System/Test menu and the Test/diagnosis menu item.
 - The arrow > corresponds to confirmation with the **enter key**.

2 Layout and function

2.1 Overview of supported machines



Some models are not available in all countries.

MDS

Supported function

- Spreading depending on forward speed

MDS 8.2 Q	MDS 10.1 Q
MDS 14.2 Q	MDS 11.1 Q
MDS 18.2 Q	MDS 12.1 Q
MDS 20.2 Q	MDS 17.1 Q
	MDS 19.1 Q

AXIS-M V8

8 section steps

Function	AXIS-M 20 Q V8	AXIS-M 30 Q V8	AXIS-M 40 Q V8	AXIS-M 20 EMC V8	AXIS-M 30 EMC V8	AXIS-M 40 EMC V8	AXIS-M 30 EMC + W V8	AXIS-M 40 EMC + W V8
Spreading depending on forward speed	•	•	•	•	•	•	•	•
Mass flow control by measuring the torque of the spreading discs					•	•	•	•
Weigh cells							•	•

AXIS-M VS pro

Continuous section adjustment (VariSpread pro)

Function	AXIS-M 30 EMC VS pro	AXIS-M 40 EMC VS pro	AXIS-M 30 EMC W VS pro	AXIS-M 40 EMC W VS pro
Spreading depending on forward speed	•	•	•	•
Mass flow control by measuring the torque of the spreading discs	•	•	•	•
Weigh cells			•	•

2.2 Layout of the control unit

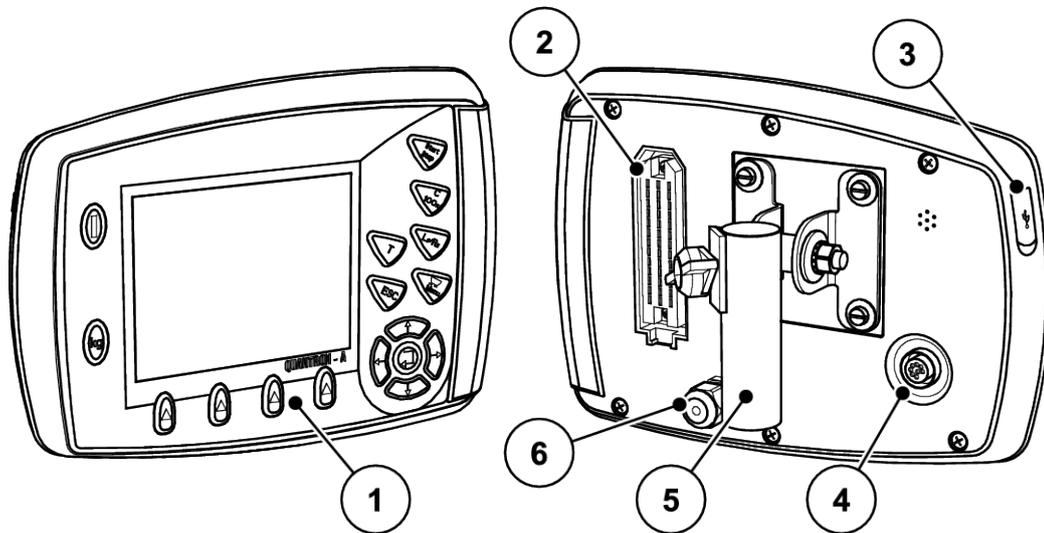


Fig. 1: Control unit QUANTRON-A

No.	Designation	Function
1	Control panel	Including membrane keys to operate the device and the display for operating screens
2	Plug connector for connecting the machine cable	39-pin plug connector for connecting the machine cable to sensors and servomotors (SpeedServos)
3	USB port with cover	For updating the PC. The cover serves as protection against dirt
4	V24 data port	Serial interface (RS232) with LH 5000 and ASD protocol, designed for connecting a Y-RS232 cable to a remote terminal. Plug connector (DIN 9684-1/ISO 11786) for connecting the 7-pin to 8-pin cable for the speed sensor.
5	Mounting bracket	Attachment of the control unit to the tractor
6	Power supply	3-pin plug connector conforming to DIN 9680 ISO 12369 for connecting the power supply

2.3 Control elements

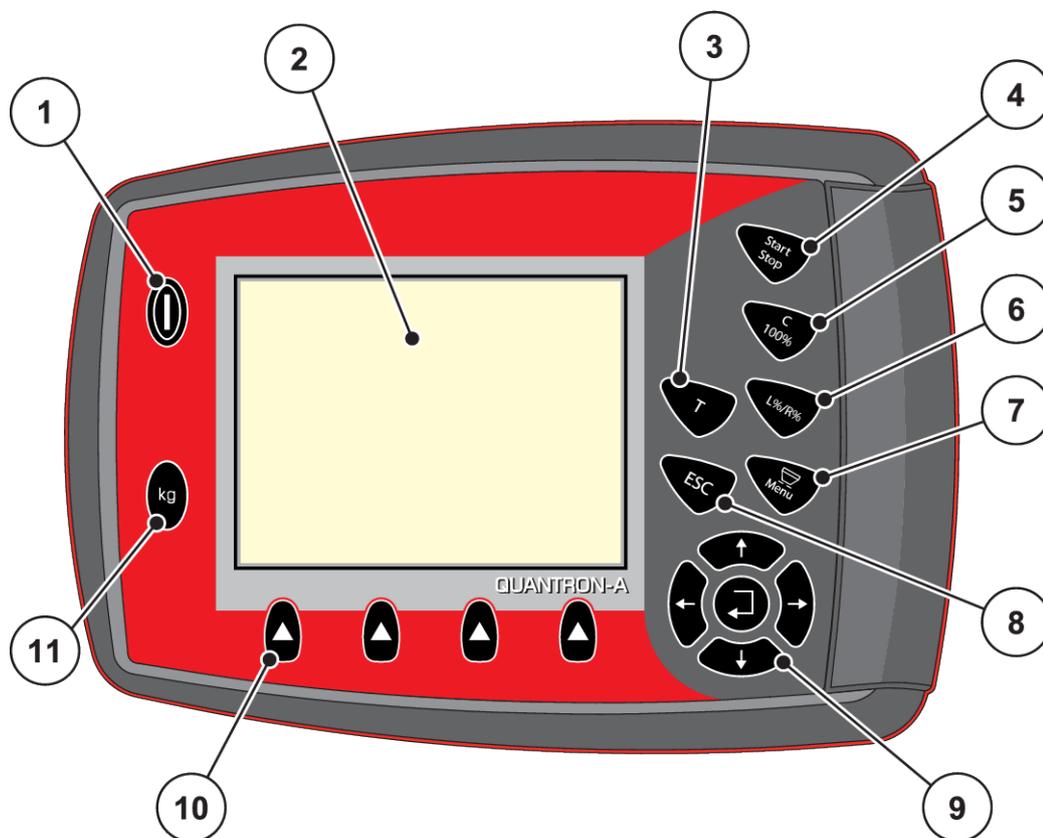


Fig. 2: Control panel at the front of the unit

No.	Designation	Function
1	ON/OFF	Switches the device on/off
2	Display	Display of operating screens
3	T key (TELIMAT)	Key to display the TELIMAT settings
4	Start/Stop	Start/stop spreading
5	Clear/Reset	<ul style="list-style-type: none"> Clearing an input in an input field, Resetting the excess quantity to 100%, Acknowledgment of alarm messages

No.	Designation	Function
6	Section setting pre-selection	Toggle key for alternating between 4 states <ul style="list-style-type: none"> • Pre-selection of sections for changing the quantity, see 4.7.3 +/- quantity <ul style="list-style-type: none"> ○ L: Left ○ R: Right ○ L+R: Left + right • Section management (VariSpread function), see 2.4.3 Display of sections
7	Menu	Switch between operating screen and main menu
8	ESC	Canceling entries and/or returning to the previous menu at the same time
9	Navigation field	Four arrow keys and one Enter key for navigation through menus and input fields <ul style="list-style-type: none"> • Arrow keys for moving the cursor on the display or for highlighting an input field • Enter key to confirm an input
10	Function keys F1 to F4	Selection of the functions next to the function keys on the display
11	Weighing/Trip count.	<ul style="list-style-type: none"> • Display of the remaining quantity in the hopper • Trip counter • kg left • Meter counter

2.4 Display

The display shows the current status information as well as the selection and input options for the electronic machine control unit.

The most important information concerning the operation of the machine is displayed in the **operating screen**.

2.4.1 Description of the operating screen



The exact representation of the working screen depends on the actual settings selected and on the machine type.

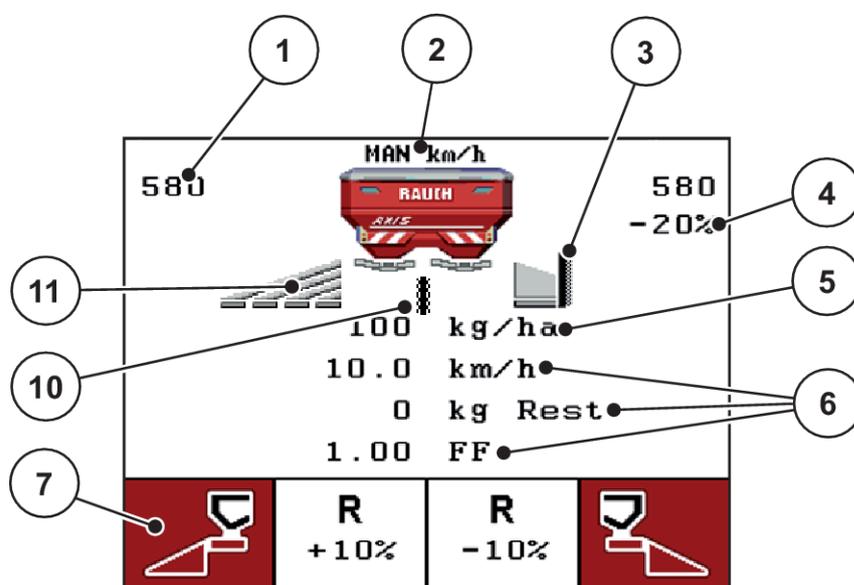


Fig. 3: Control unit display – example AXIS-M operating screen

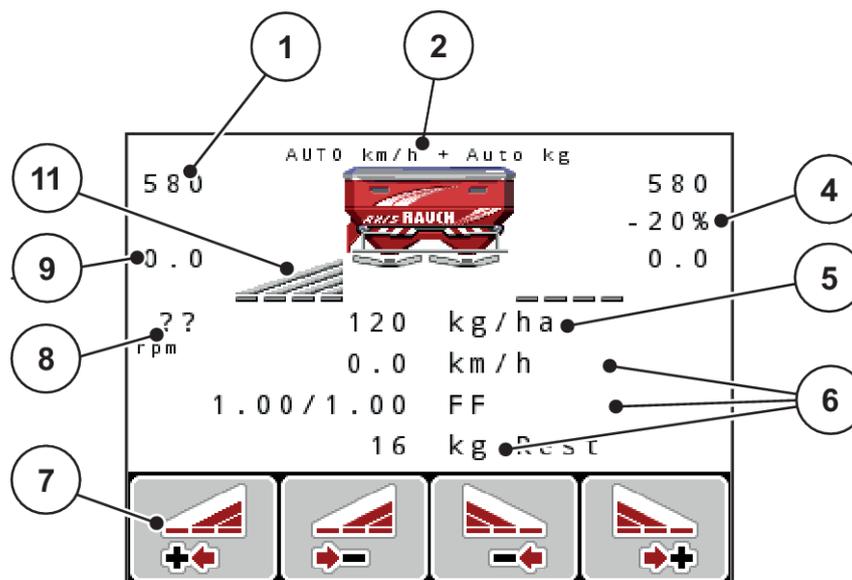


Fig. 4: Control unit display – example AXIS-M EMC operating screen

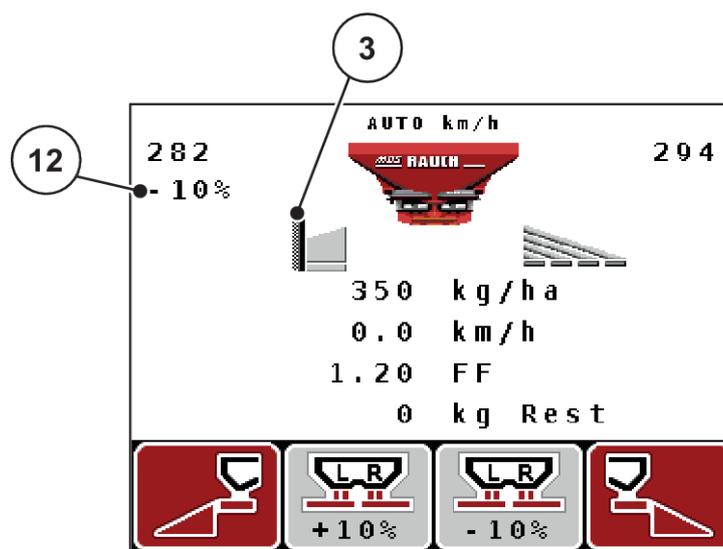


Fig. 5: Control unit display – example MDS operating screen

No.	Icon/display	Meaning (in the example shown)
1	Metering slide scale opening, left	Current opening position of the left metering slide
2	Operating mode	Shows the current operating mode
3	Icon TELIMAT	This icon appears on the right for AXIS and on the left for MDS if the TELIMAT sensors are installed and the TELIMAT function is enabled (factory setting) or the T key is activated.

No.	Icon/display	Meaning (in the example shown)
4	Right application rate adjustment	Application rate adjustment (\pm) in percent <ul style="list-style-type: none"> • Display of application rate adjustments • Range of values \pm 1...99% possible
5	Application rate	Preset application rate
6	Display fields	Individually configurable display fields <ul style="list-style-type: none"> • Possible configuration: see 4.10.2 <i>Display configuration</i>
7	Icon fields	Icon assignment to the fields depending on the menu <ul style="list-style-type: none"> • Selection of the function by means of the function keys below
8	PTO speed	Only EMC function: Current PTO speed <ul style="list-style-type: none"> • See 4.6.6 <i>PTO speed</i>
9	Drop point	Current position of the drop point
10	Sensor brd.spread	AXIS only: This icon appears if the limited border spreading system is in the operating position and the function is enabled (factory setting)
11	Section left	Display of the left section status <ul style="list-style-type: none"> • See 2.4.2 <i>Display of the metering slide status</i>
12	Left application rate adjustment	Application rate adjustment (\pm) in percent <ul style="list-style-type: none"> • Display of application rate adjustments • Range of values \pm 1...99% possible

2.4.2 Display of the metering slide status

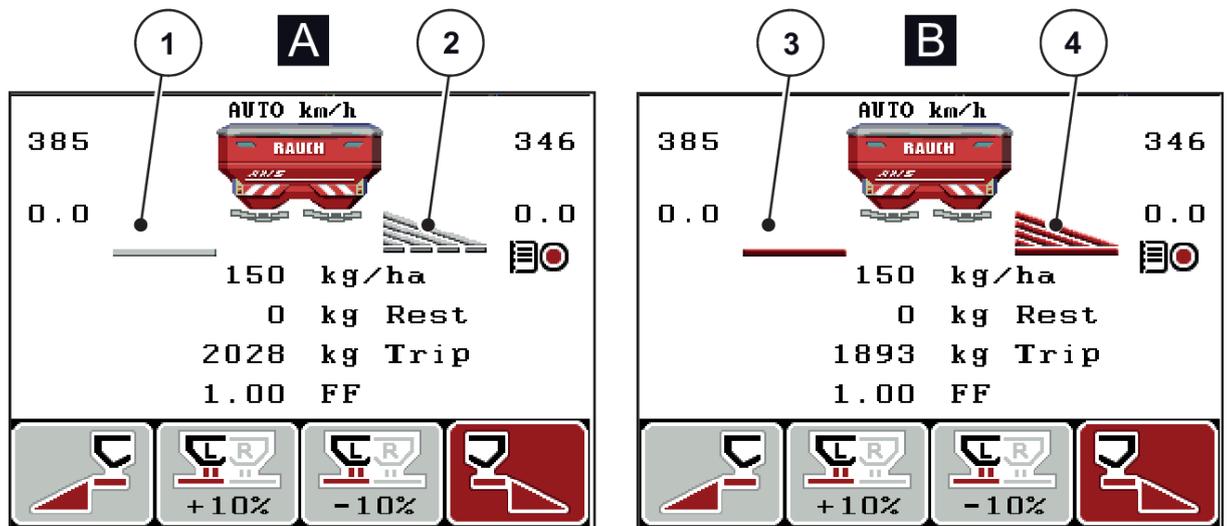


Fig. 6: Display of the AXIS metering slide status

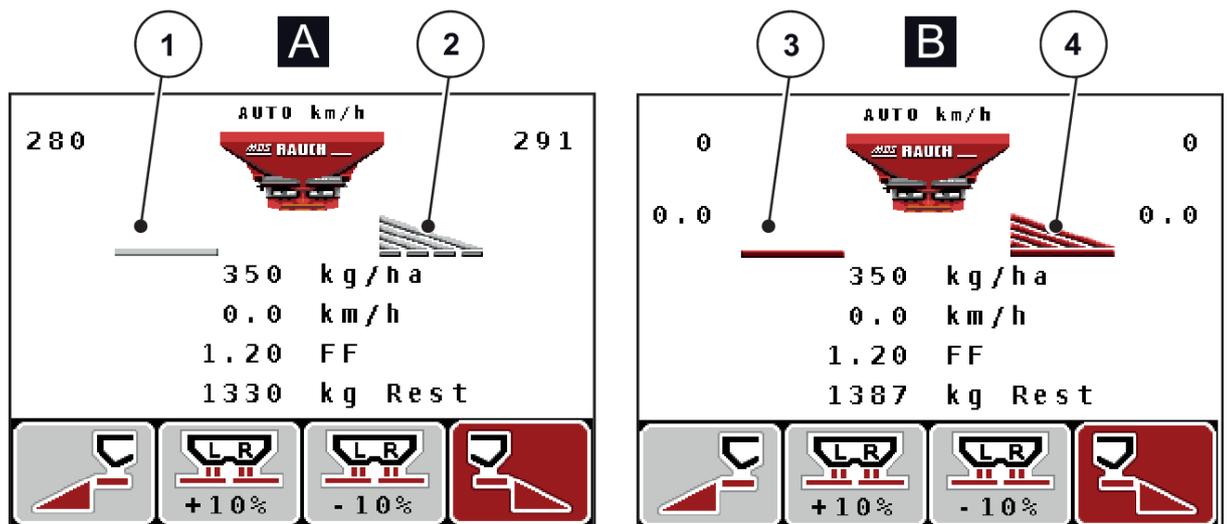


Fig. 7: Display of the MDS metering slide status

- | | | | |
|---|------------------------------|---|--------------------------------|
| A | Spreading operation inactive | B | Machine in spreading operation |
| 1 | Section deactivated | 3 | Section deactivated |
| 2 | Section activated | 4 | Section activated |

2.4.3 Display of sections

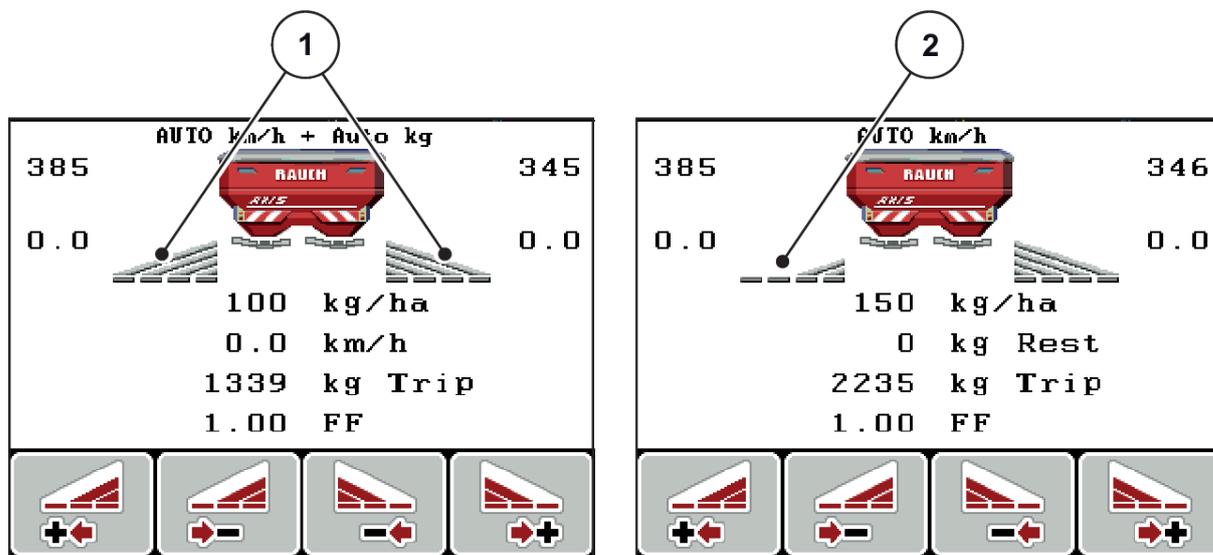


Fig. 8: Display of the section status (example with AXIS VariSpread 8)

- [1] Activated sections with 4 possible spreading width steps [2] The left section is reduced by 2 section steps

Further display and setting options are explained in chapter 5.3 Working with sections.

2.5 Library of icons used

The control unit QUANTRON-A displays icons for the individual menus and functions on the screen.

2.5.1 Operating screen icons

Icon	Meaning
An icon showing a stylized 'L' and 'R' with a red bar below them and '+ 10%' written underneath.	Quantity adjustment + (plus)
An icon showing a stylized 'L' and 'R' with a red bar below them and '- 10%' written underneath.	Quantity adjustment - (minus)
An icon showing a stylized 'L' and 'R' with a red bar below them, '+ 10%' written underneath, and a red arrow pointing left.	Quantity adjustment, left + (plus)
An icon showing a stylized 'L' and 'R' with a red bar below them, '- 10%' written underneath, and a red arrow pointing left.	Quantity adjustment, left - (minus)
An icon showing a stylized 'L' and 'R' with a red bar below them, '+ 10%' written underneath, and a red arrow pointing right.	Quantity adjustment, right + (plus)
An icon showing a stylized 'L' and 'R' with a red bar below them, '- 10%' written underneath, and a red arrow pointing right.	Quantity adjustment, right - (minus)
An icon with the text 'MAN' above a plus sign '+'. The background is grey.	Manual quantity adjustment + (plus)
An icon with the text 'MAN' above a minus sign '-'. The background is grey.	Manual quantity adjustment - (minus)
An icon showing a stylized 'L' and 'R' with a red bar below them and a red arrow pointing left. The background is grey.	Left spreading side inactive
An icon showing a stylized 'L' and 'R' with a red bar below them and a red arrow pointing left. The background is red.	Left spreading side active
An icon showing a stylized 'L' and 'R' with a red bar below them and a red arrow pointing right. The background is grey.	Right spreading side inactive

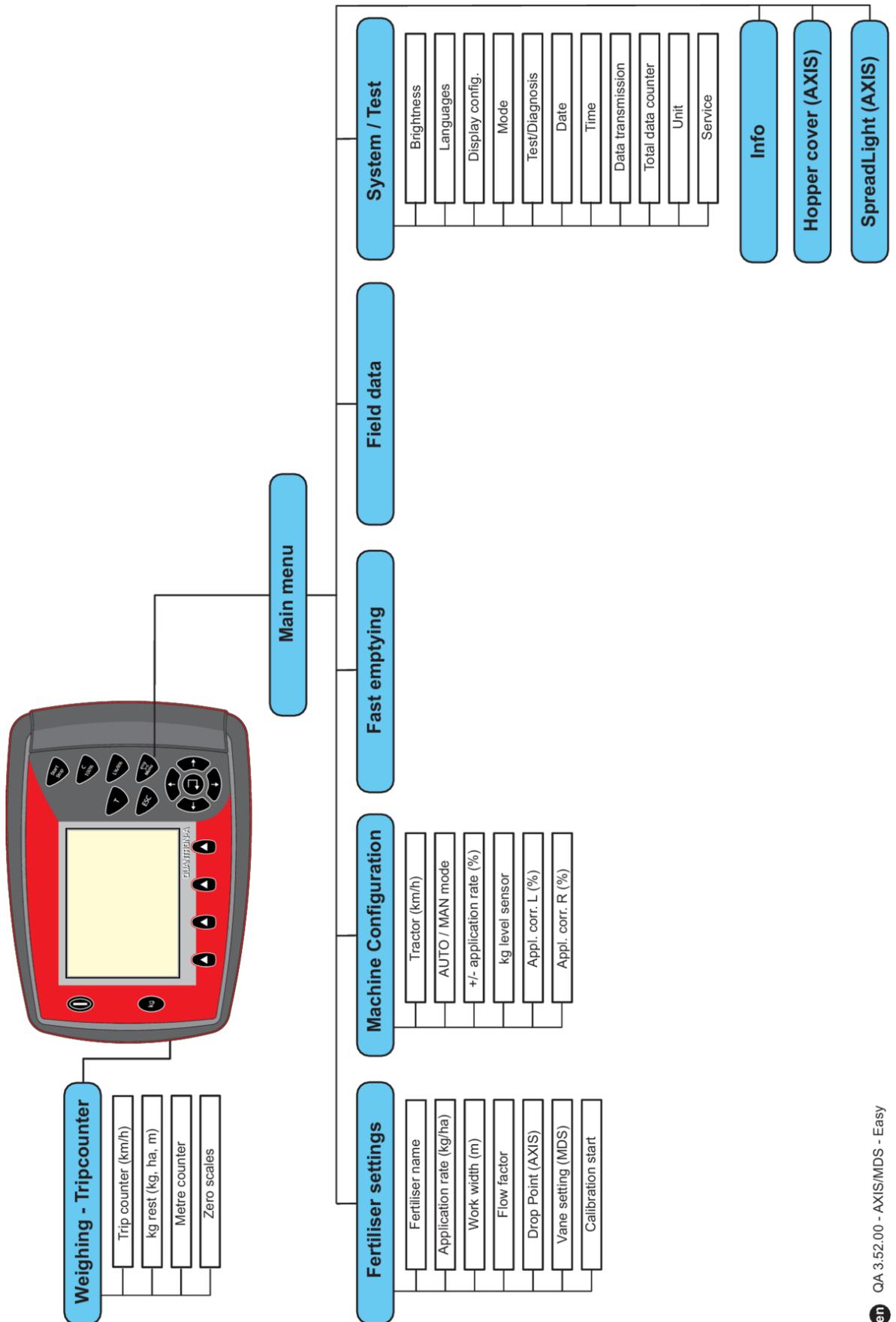
Icon	Meaning
	Right spreading side active
	Reduce section, right (minus) In boundary spreading mode: Pressing and holding (> 500 ms) immediately deactivates an entire spreading side.
	Increase right section (plus)
	The minimum mass flow is undercut

2.6 Structural menu overview

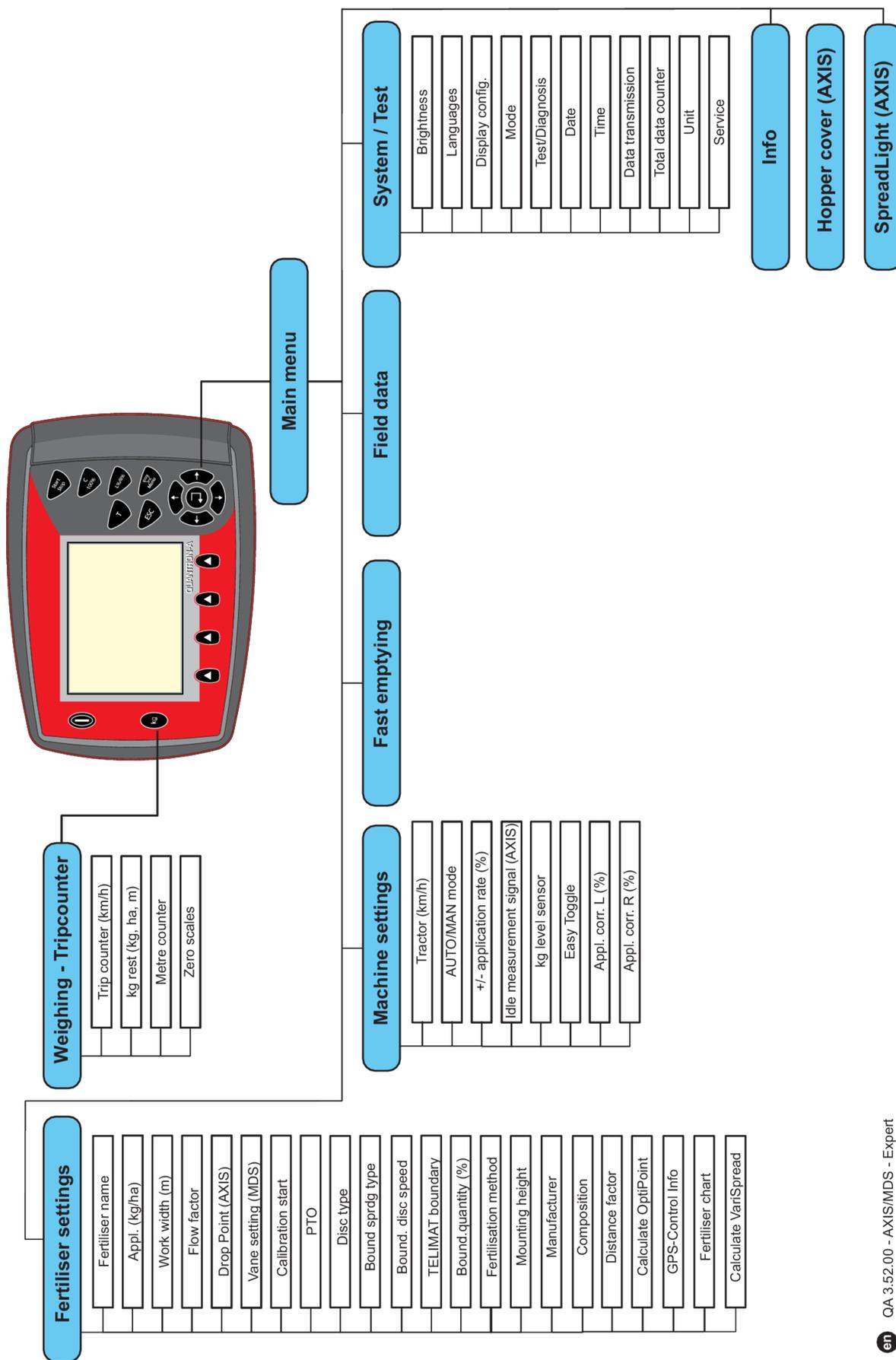


The Easy/Expert mode is adjusted in the System/Test menu.

Easy Mode



Expert Mode



2.7 **WIFI module**

With the help of the WIFI module (special equipment) and the FertChartApp on a smartphone, you can communicate spreading tables wirelessly to your control unit.

Please refer to the manual for the WIFI module. Contact your dealer to install the FertChartApp on your control unit.

The WIFI password is **quantron**.

3 Attachment and installation

3.1 Tractor requirements

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

- A minimum voltage of **11 V** must **always** be guaranteed, even if multiple loads are connected simultaneously (e.g., air conditioning system, lights)
- The PTO speed must be **540 rpm** as a minimum requirement and must be complied with (basic requirement for a correct working width).



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 **540 rpm**.

- A 7-pin socket (DIN 9684-1/ISO 11786). Via this socket, the control unit receives the pulse for the current forward speed.



The 7-pin socket for the tractor and the forward speed sensor can be obtained as an expansion kit (option), see chapter 7 *Special equipment*

3.2 Connections, sockets

3.2.1 Power supply

The tractor supplies the machine control with power via the 3-pin connector (DIN 9680/ISO 12369).

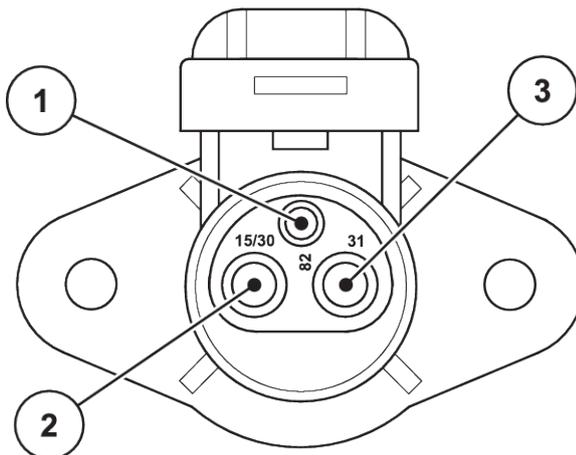


Fig. 9: PIN assignment of power socket

- [1] PIN 1: is not required
- [2] PIN 2: (15/30): +12 V

- [3] PIN 3: (31): Ground

3.2.2 Forward speed signal

The control unit receives the pulses for the current forward speed via the 7-pin plug connector (DIN 9684-1/ISO 11786). For this purpose, the 7-pin to 8-pin cable (accessory) is connected to the forward speed sensor at the plug connector.

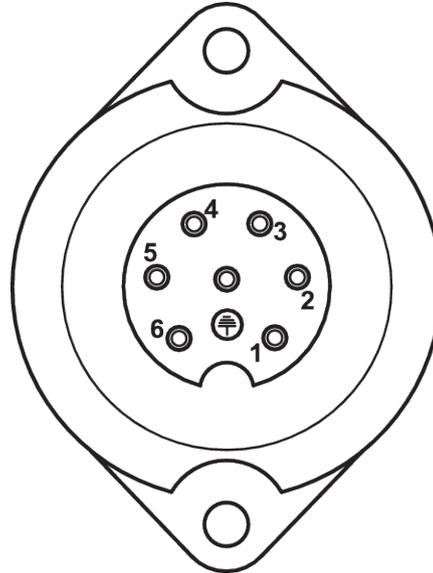


Fig. 10: PIN assignment of the 7-pin plug connector

- [1] PIN 1: actual forward speed (radar) [2] PIN 2: theoretical forward speed (e.g. gearbox, wheel sensor)

3.3 Connect control unit



After having switched on the QUANTRON-A control unit, the machine number is briefly displayed.



Note the machine number

The QUANTRON-A control unit is factory-calibrated for the fertilizer spreader with which it has been delivered.

Connect the control unit to the correct fertilizer spreader only.

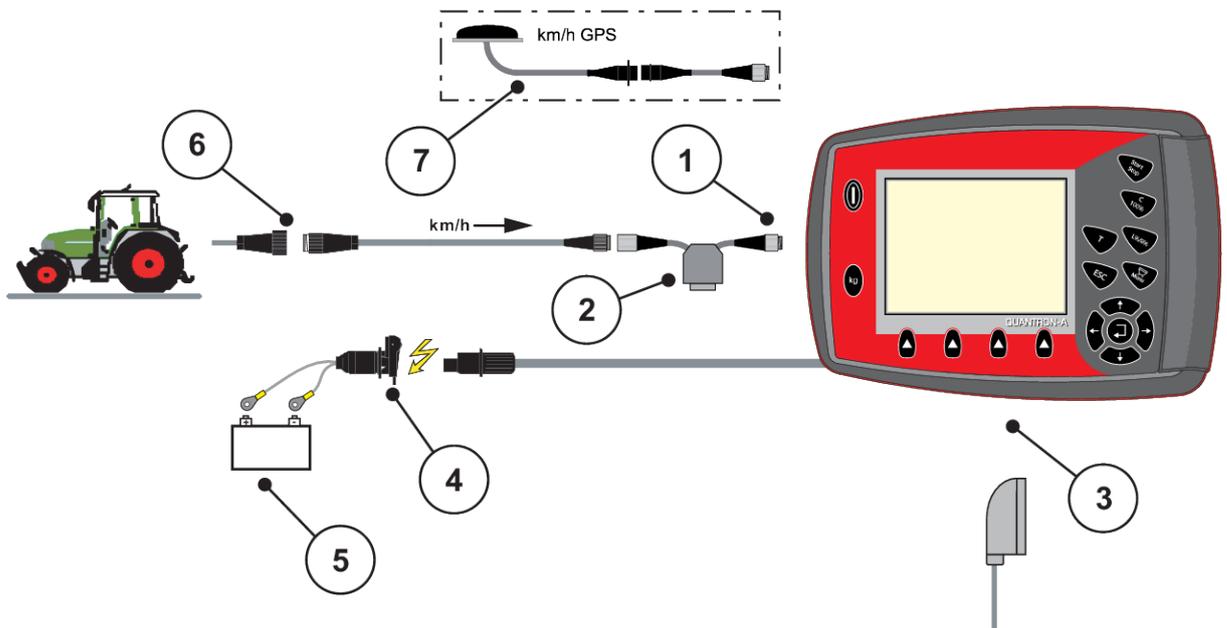
Depending on the equipment, there are different methods of attaching the control unit to the fertilizer spreader.

Proceed in the following order:

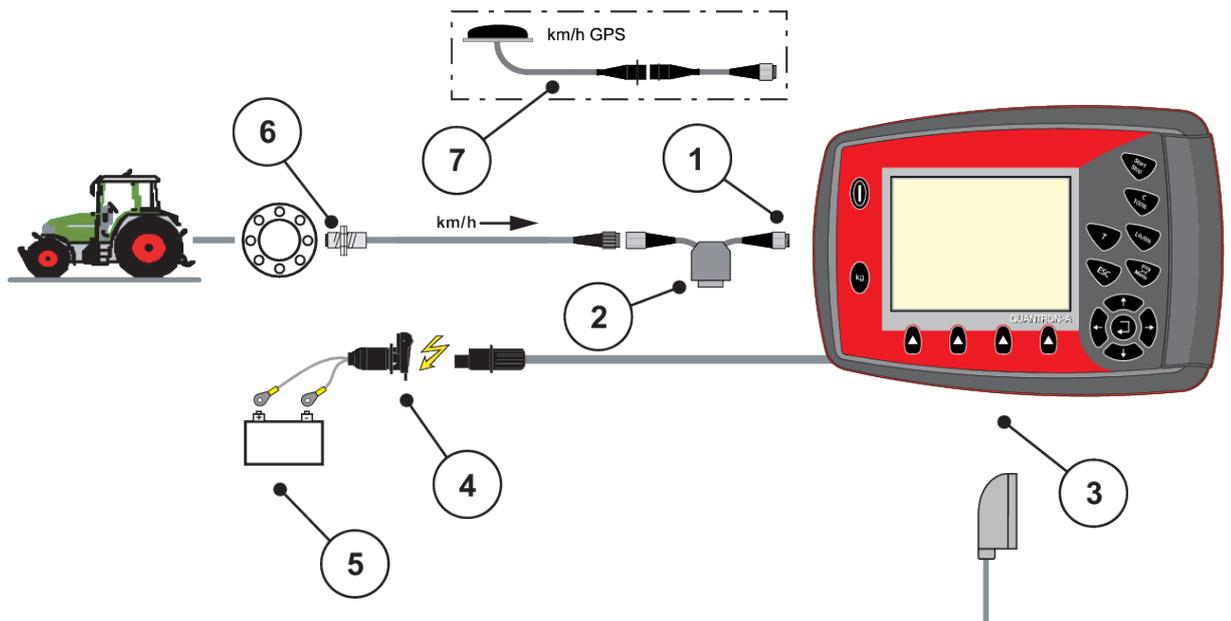
- ▶ Select a suitable position in the tractor cabin (within the driver's field of vision) to secure the control unit.
- ▶ Secure the control unit by means of the mounting bracket in the tractor cabin.
- ▶ Connect the control unit to the 7-pin socket or to the forward speed sensor (depending on the equipment).
- ▶ Connect the control unit to the actuators of the machine using the 39-pin machine cable.
- ▶ Connect the control unit to the tractor's power supply using the 3-pin plug connector.

3.3.1 Overview of connections to tractor

Standard

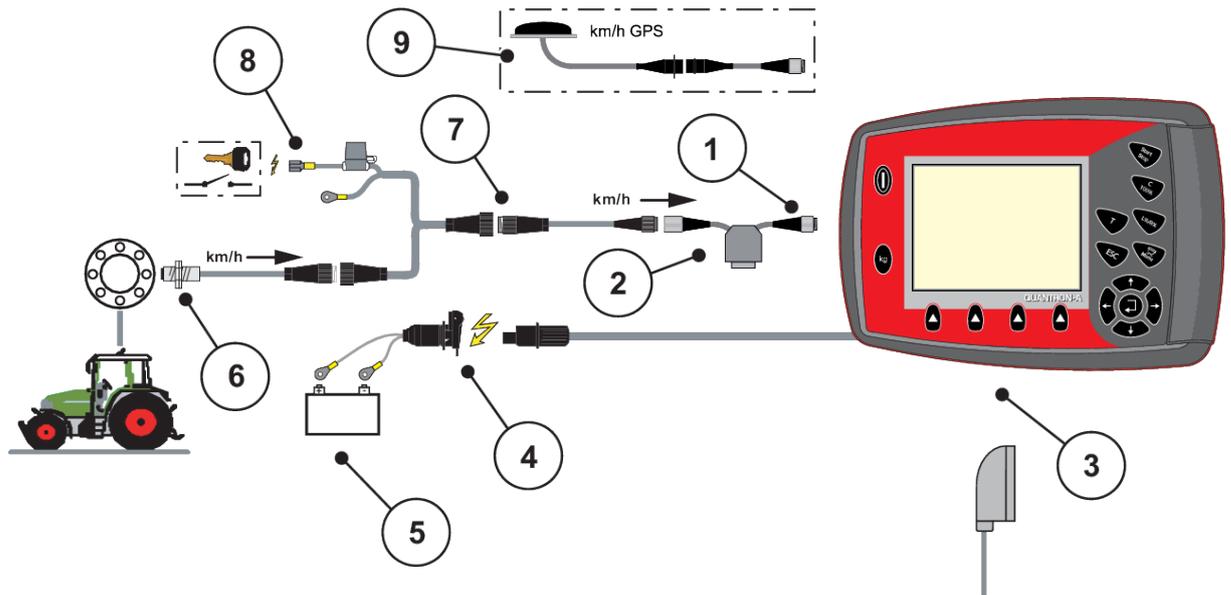


- | | |
|--|---|
| [1] Serial interface RS232, 8-pin plug connector | [5] Battery |
| [2] Option: Y-cable (V24 RS232 interface for storage medium) | [6] 3-pin plug connector conforming to DIN 9680/ISO 12369 |
| [3] Connection for 39-pin machine plug (rear) | [7] Option: GPS cable and receiver |
| [4] 7-pin plug connector conforming to DIN 9684 | |

Wheel sensor

- | | |
|--|------------------------------------|
| [1] Serial interface RS232, 8-pin plug connector | [5] Battery |
| [2] Option: Y-cable (V24 RS232 interface for storage medium) | [6] Forward speed sensor |
| [3] Connection for 39-pin machine plug (rear) | [7] Option: GPS cable and receiver |
| [4] 3-pin plug connector conforming to DIN 9680/ISO 12369 | |

power supply via ignition lock



- | | |
|--|---|
| [1] Serial interface RS232, 8-pin plug connector | [6] Forward speed sensor |
| [2] Option: Y-cable (V24 RS232 interface for storage medium) | [7] 7-pin plug connector conforming to DIN 9684 |
| [3] Connection for 39-pin machine plug (rear) | [8] Option: QUANTRON-A electricity supply via ignition switch |
| [4] 3-pin plug connector conforming to DIN 9680/ISO 12369 | [9] Option: GPS cable and receiver |
| [5] Battery | |

3.3.2 Overview of connections to machine

MDS

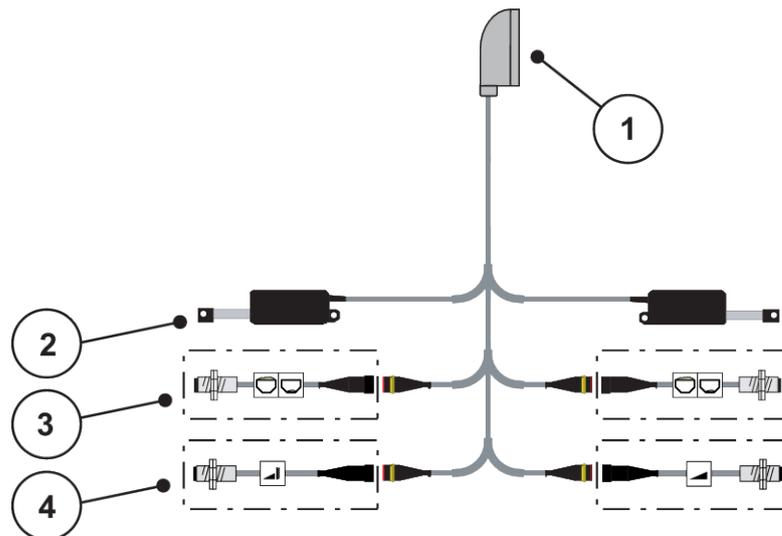


Fig. 11: Schematic connection diagram of QUANTRON-A – MDS

- | | |
|---|---|
| [1] 39-pin machine plug | [3] Option (level sensor, left/right) |
| [2] Metering slide actuator, left/right | [4] Option (TELIMAT sensor, top/bottom) |

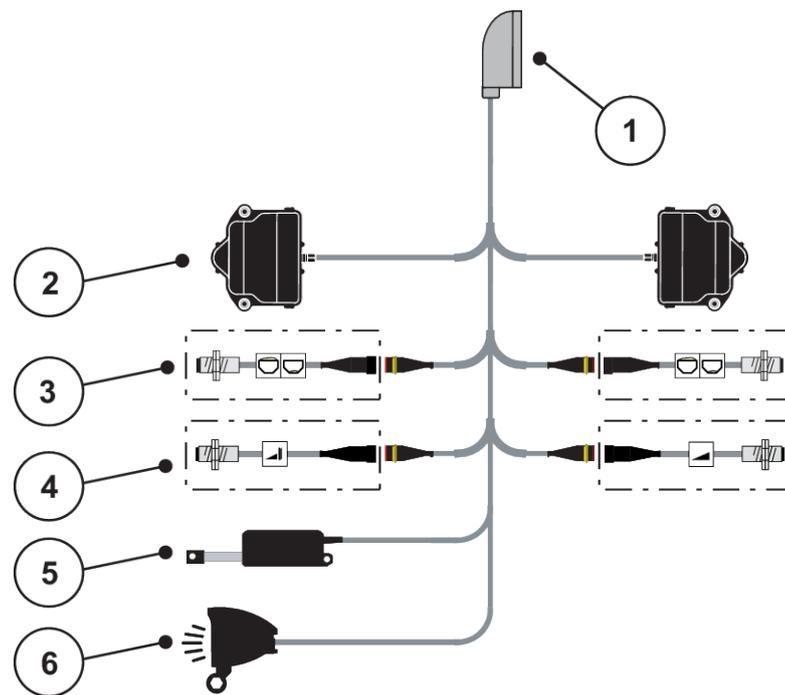
AXIS-M variant Q

Fig. 12: Schematic connection diagram of QUANTRON-A – AXIS-M variant Q

- | | |
|--|-------------------------|
| [1] 39-pin machine plug | [5] Hopper cover |
| [2] Metering slide rotary drive, left/right | [6] Option: SpreadLight |
| [3] Option (level sensor, left/right) | |
| [4] Option TELIMAT sensor and/or GSE sensor,
top/bottom | |

AXIS-M EMC – VariSpread V8

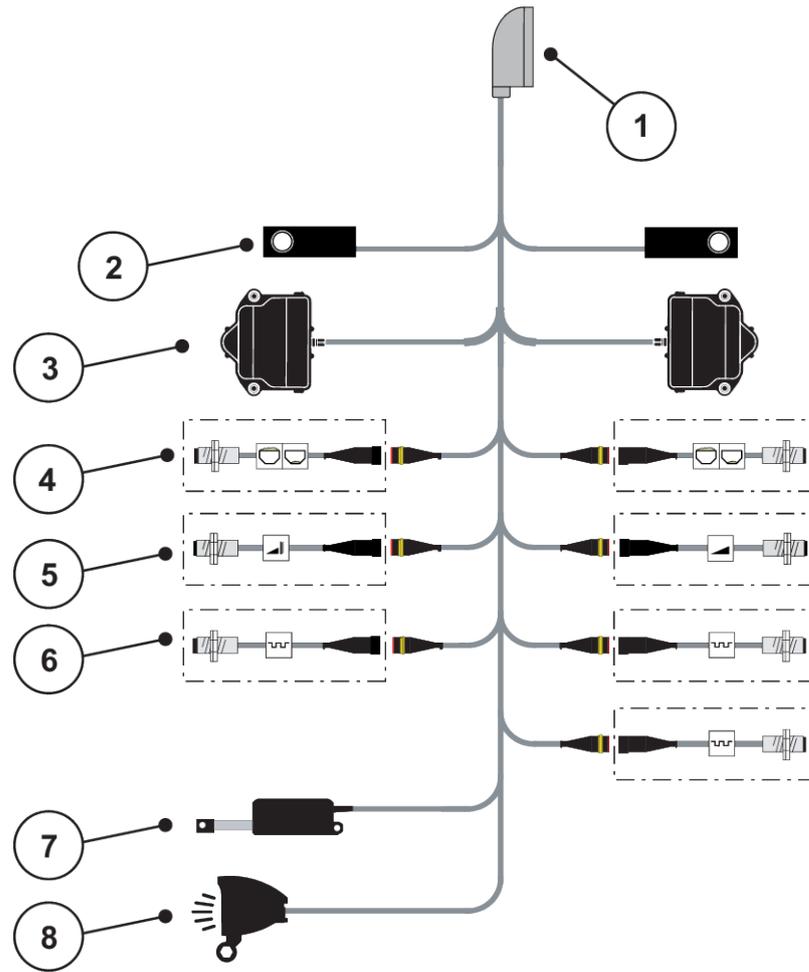


Fig. 13: Schematic connection diagram of QUANTRON-A – AXIS-M EMC V8

- | | |
|---|--|
| [1] 39-pin machine plug | [5] Option: TELIMAT sensor and/or GSE sensor, top/bottom |
| [2] Weigh cell, left/right (machines with weigh frame only) | [6] M EMC sensors (left, right, center) |
| [3] Metering slide rotary drive, left/right | [7] Hopper cover |
| [4] Option: Level sensor, left/right | [8] Option: SpreadLight |

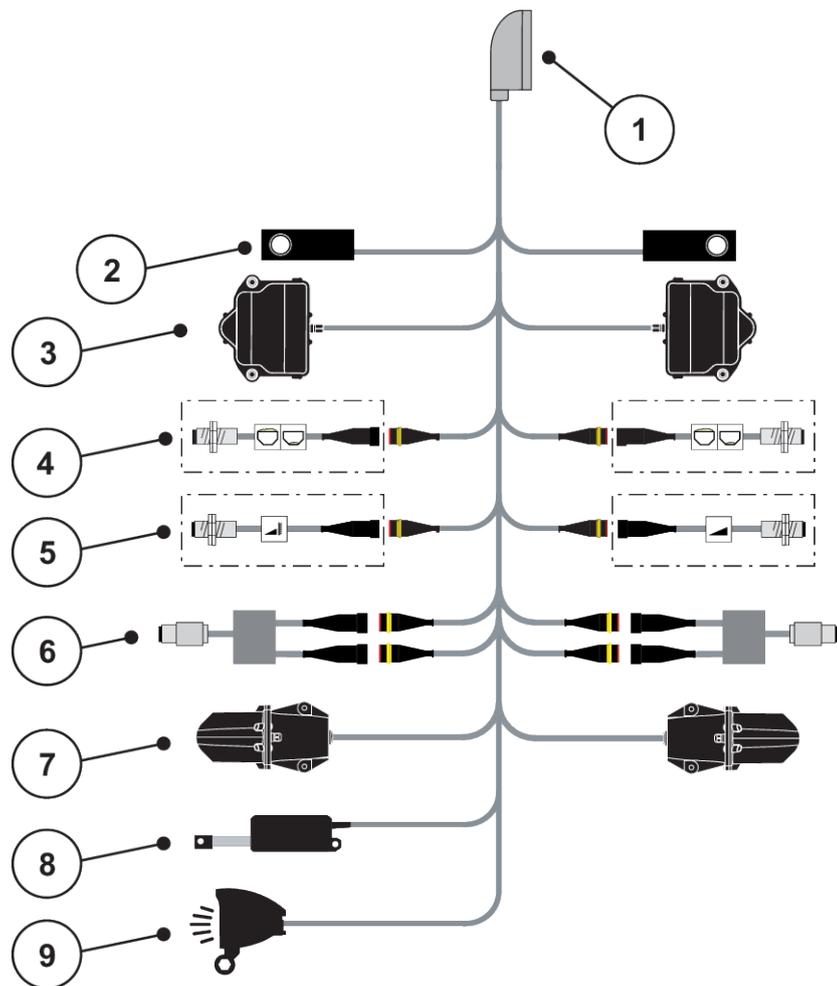
AXIS-M EMC – VariSpread VS pro

Fig. 14: Schematic connection diagram of QUANTRON-A – AXIS-M EMC VS pro

- | | |
|---|---------------------------------------|
| [1] 39-pin machine plug | [6] Torque/speed sensor, left/right |
| [2] Weigh cell, left/right (machines with weigh frame only) | [7] Drop point adjustment, left/right |
| [3] Metering slide rotary drive, left/right | [8] Hopper cover |
| [4] Option: Level sensor, left/right | [9] Option: SpreadLight |
| [5] Option: TELIMAT sensor and/or GSE sensor, top/bottom | |

3.4 Metering slide preparation

Mineral fertilizer spreaders AXIS-M Q, AXIS-M EMC, and MDS Q are fitted with an electric slide actuator for setting the application rate.

NOTICE!

Observe the position of the metering slides of the AXIS fertilizer spreader

Operation of the actuators by the control unit QUANTRON-A can cause damage to the metering slides of the machine if the stop levers are incorrectly positioned.

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

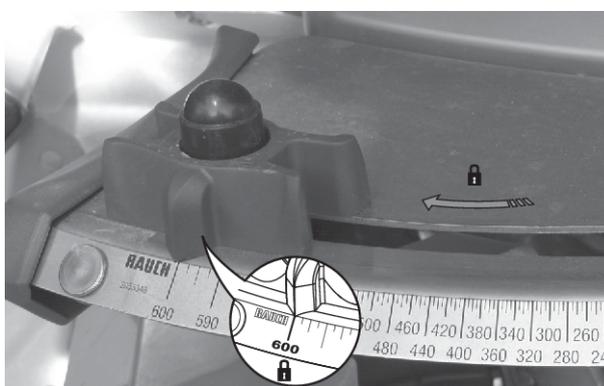


Fig. 15: AXIS metering slide preparation (example)



Observe the operator's manual of your mineral fertilizer spreader.

4 Operation

⚠ CAUTION!

Risk of injury due to ejected fertilizer

In the case of a fault, it is possible that the metering slide unexpectedly opens during road transport to the spreading location. There is a risk of slipping and personal injury due to ejected fertilizer.

- ▶ **Before leaving for the spreading location**, always switch off the electronic machine control unit.



Only AXIS-M EMC (+W)

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

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

- In the Fertiliser settings menu
 - Spreading disc; see 4.6.7 *Disc type*
 - PTO; see 4.6.6 *PTO speed*
- In the Machine settings menu
 - AUTO/MAN mode; see 4.7.2 *AUTO/MAN mode* and chapter 5

4.1 Switching on the machine control unit

Requirements:

- The machine control unit is correctly connected to the machine and the tractor.
 - For an example, see Chapter 3.3 *Connect control unit*.
- The minimum voltage of **11 V** is guaranteed.

- ▶ Press the **ON/OFF** switch [1].

*After a few seconds, the **start-up screen** of the control unit is displayed.*

*Shortly after, the control unit will display the **activation menu** for a few seconds.*

- ▶ Press the **Enter key**.

The start diagnosis will be displayed for a few seconds.

The operating screen then appears.



Fig. 16: Switching on the control unit

[1] ON/OFF switch

4.2 Navigation within the menus



Please refer to section 1.3.3 *Menu hierarchy, keys and navigation* for important notes regarding the display and navigation between menus.



Accessing the main menu

- ▶ Press the Menu key. See 2.3 *Control elements*

The main menu is displayed.

The black bar indicates the first sub-menu.



Not all parameters are displayed simultaneously in one menu window. The **arrow keys** enable switching to the next or previous windows.

Accessing a sub-menu

- ▶ Move the bar up and down with the arrow keys.
- ▶ Highlight the desired sub-menu with the bar on the display.
- ▶ Access the highlighted sub-menu by pressing the Enter key.

Windows appear which prompt various actions.

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

Exiting menus

- ▶ Confirm settings by pressing the **Enter key**.

You will return to the previous menu.

Or

- ▶ Press ESC.

The previous settings are retained.

You will return to the previous menu.

Or

- ▶ Press the Menu key.

The operating screen is displayed again.

Press the Menu key again to return to the last menu.



4.3 Weighing/Trip counter

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



- ▶ Press the kg key on the control unit.

The *Weighing/Trip count.* menu appears.

Weighing/Trip count.
Trip counter
Rest (kg, ha, m)
Meter counter
Zero scales

Fig. 17: Menu Weighing/Trip count.

Sub-menu	Meaning	Description
Trip counter	Display of the fertilizer quantity spread, area spread, and spread distance	4.3.1 Trip counter
Rest (kg, ha, m)	For weighing spreaders only: Display of the remaining quantity in the hopper	4.3.2 Display rest quantity
Meter counter	Display of the distance traveled since the last reset of the meter counter	Reset (zeroing) by pressing the C 100% key
Zero scales	For weighing spreaders only: Weighing value for empty scales is set to "0 kg"	4.3.3 Zero scales

4.3.1 Trip counter

In this menu, the values of the spreading work carried out can be obtained, the remaining spreading quantity can be observed, and the trip counter can be reset by deleting.

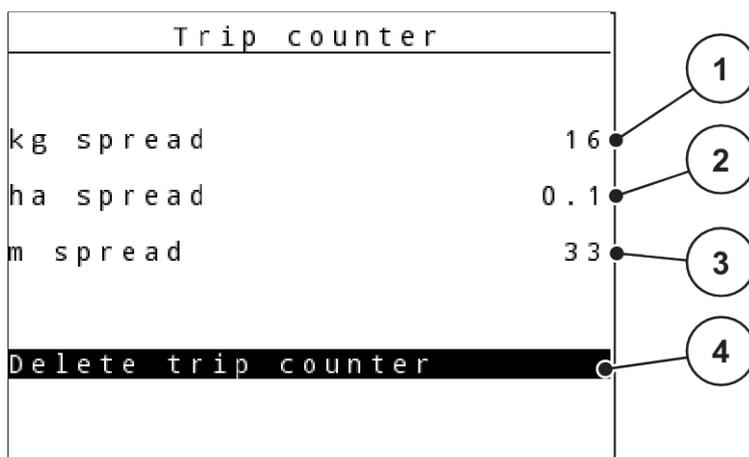


Fig. 18: Trip counter menu

- | | |
|---|---|
| [1] Display of spread quantity since the last reset | [3] Display of spread distance since the last reset |
| [2] Display of spread area since the last reset | [4] Delete trip counter: all values to 0 |

Delete trip counter

- ▶ Access the sub-menu Weighing/Trip count. > Trip counter.

The values for spread quantity, area, and distance calculated since the last deletion are displayed.

The Delete trip counter field is highlighted.

- ▶ Press the **Enter** key.

All values of the trip counter are reset to 0.

- ▶ Press the **kg** key.

The operating screen is displayed again.

Checking the trip counter during spreading

During spreading, i.e. with the metering slides open, you can open the Trip counter menu to display the current values.



If the values are to be permanently monitored during spreading, freely assignable display fields in the operating screen can also be assigned the kg trip values, ha trip or m trip values, see chapter 4.10.2 Display configuration

4.3.2 Display rest quantity

In the kg left menu, you can obtain the remaining quantity in the hopper.

The menu indicates the possible area (ha) and distance (m) which can still be spread with the remaining fertilizer quantity.

Both displays are calculated based on the following values:

- Fertiliser settings
- Input in the remaining quantity input field
- Application rate
- Working width

► Access the menu Weighing/Trip count.> Rest (kg, ha, m).

The Rest menu appears.



For weighing spreaders the current fill weight can only be determined by weighing. In all other spreaders, the remaining fertilizer quantity is calculated from the fertilizer and machine settings as well as from the drive signal, and the filling quantity must be entered manually (see below).

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

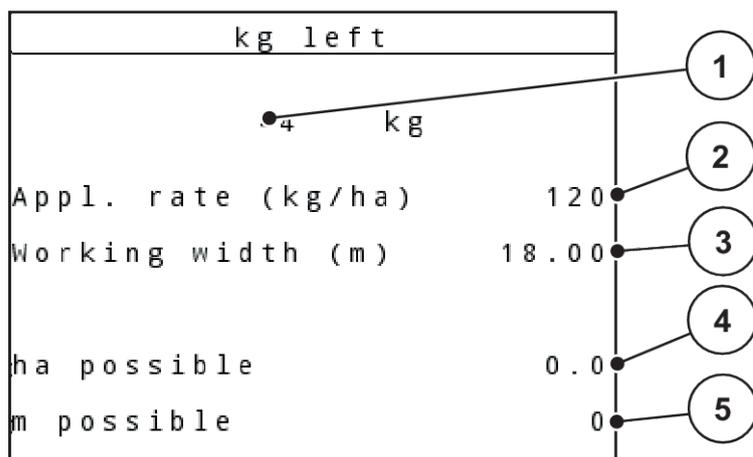


Fig. 19: Menu kg left

- | | |
|--|--|
| [1] Remaining quantity input field | [4] Display of the area that can be spread |
| [2] Application rate, display field from Fertiliser settings | [5] Display of the distance that can be spread |
| [3] Working width, display field from Fertiliser settings | |

► Access the menu Weighing/Trip count. > Rest (kg, ha, m).

The remaining quantity from the last spreading process is displayed.

► Fill the hopper.

► In the kg field, enter the new total weight of the fertilizer in the hopper.

► Press the **Enter** key

The unit calculates the values for the possible spread area and distance.





- ▶ Press the **kg** key.

The operating screen is displayed again.

Requesting the remaining quantity during spreading



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

Refer to Chapter 5 *Spreading operation*

4.3.3 Zero scales

Only for AXIS with weigh cells

In this menu, set the weighing value for the empty hopper to 0 kg.

For taring the scales, the following requirements have to be fulfilled:

- 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.

Zero scales:

- ▶ Access the menu Weighing/Trip count. > Zero scales.



- ▶ Press the **Enter key**.

The weighing value for the empty scales is now set to 0 kg.

The Weighing trip counter menu is displayed.



Tare the scales before each use in order to ensure problem-free calculation of the remaining quantity.

4.4 Main menu

Main menu 1 / 2
Fertiliser settings
Machine settings
Fast emptying
Field data
Hopper cover
SpreadLight
System / Test

Fig. 20: Main menu

Sub-menu	Meaning	Description
Fertiliser settings	Fertilizer and spreading operation settings	<i>4.5 Fertiliser settings in Easy-Mode</i>
Machine settings	Tractor and machine settings	<i>4.7 Machine settings</i>
Fast emptying	Direct access to menu for fast emptying of the machine	<i>4.8 Fast emptying</i>
Field data	Opens the menus for selecting, creating, or deleting field data	<i>4.9 Field data</i>
Hopper cover	Opening/closing the hopper cover	<i>4.13 Hopper cover</i>
SpreadLight	Activation/deactivation of operating lights	<i>4.12 Operating lights (SpreadLight)</i>
System/Test	Settings and diagnosis of the machine control unit	<i>4.10 System/Test</i>
Info	Machine configuration display	<i>4.11 Info</i>

4.5 Fertiliser settings in Easy-Mode

The Mode setting is described under *4.10.3 Setting the mode*.

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

- ▶ Access the menu Main menu > Fertiliser settings.



In the **M EMC** function, the mode is automatically set to expert.

Fertiliser settings ^{1/4}	
8.ABC.....	
Appl. rate (kg/ha)	100
Working width (m)	36.00
Flow factor	1.00
Drop point	0.0
Start calibration	

Fig. 21: Fertiliser settings menu for AXIS, Easy mode

Fertiliser settings	
1.ABC	
Appl. rate (kg/ha)	100
Working width (m)	18.00
Flow factor	1.00
Vane setting	-----
Start calibration	

Fig. 22: Fertiliser settings menu for MDS, Easy mode

Sub-menu	Meaning	Description
Fertiliser name	Fertilizer selected from the fertilizer chart	4.6.11 <i>Fertilizer charts</i>
Appl. rate (kg/ha)	Input of target value for the application rate in kg/ha	4.6.1 <i>Application rate</i>
Working width (m)	Determination of the working width to be spread	4.6.2 <i>Setting the working width</i>
Flow factor	Input of flow factor of the fertilizer used	4.6.3 <i>Flow factor</i>
Drop point	Input of the drop point For AXIS with electrical drop point actuators : Drop point adjustment	Please observe the operator's manual for the machine. 4.6.4 <i>Drop point</i>
Vane setting	Input of vane settings. The display is only for information purposes	Please observe the operator's manual for the machine.
Start calibration	Accessing the sub-menu for executing the calibration	4.6.5 <i>Calibration</i>

4.6 Fertiliser settings in Expert-Mode

The Mode setting is described under 4.10.3 *Setting the mode*.

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

- ▶ Access the menu Main menu > Fertiliser settings.



In the **M EMC** function, the mode is automatically set to expert.



The entries in the Spreading disc and PTO menu item must correspond to the actual settings of your machine.

Fertiliser settings ^{1/4}		Fertiliser settings ^{2/4}	
8.ABC.....		PTO	540
Appl. rate (kg/ha)	100	Spreading disc	54
Working width (m)	36.00	Bound. sprd.type	Limited bd
Flow factor	1.00	Bound. disc speed	0
Drop point	0.0	TELIMAT Limited bd	000
Start calibration		Grenzstr.Menge (%)	- 0
		Fertilisation	Normal

Fig. 23: Fertiliser settings menu for AXIS, Expert mode

Fertiliser settings ^{1/3}		Fertiliser settings ^{2/3}	
1.ABC		PTO	540
Appl. rate (kg/ha)	100	Spreading disc	M1
Working width (m)	18.00	Bound. sprd.type	Limited bd
Flow factor	1.00	Bound. disc speed	0
Vane setting	-----	TELIMAT Limited bd	-----
Start calibration		Grenzstr.Menge (%)	- 0
		Fertilisation	Normal

Fig. 24: Fertiliser settings menu for MDS, Expert mode

Fertiliser settings ^{3/3}		Fertiliser settings ^{4/4}			
Mounting height	50/50	Calculate VariSpread			
-----		Width	drp.pt.	RPM	Applic.
-----		8.00	0.0	540	AUTO
Aerodynamic factor	100	06.00	0.0	540	AUTO
Calculate OptiPoint		04.00	0.0	540	AUTO
GPS Control Info		02.00	0.0	540	AUTO
Fertiliser chart		0.00	0.0	540	AUTO

Fig. 25: Fertiliser settings menu for AXIS/MDS, tabs 3/4

Sub-menu	Meaning	Description
Fertiliser name	Fertilizer selected from the fertilizer chart	4.6.11 Fertilizer charts

Sub-menu	Meaning	Description
Appl. rate (kg/ha)	Input of target value for the application rate in kg/ha	<i>4.6.1 Application rate</i>
Working width (m)	Determination of the working width to be spread	<i>4.6.2 Setting the working width</i>
Flow factor	Input of flow factor of the fertilizer used	<i>4.6.3 Flow factor</i>
Drop point	Input of the drop point For AXIS with electrical drop point actuators : Drop point adjustment	Please observe the operator's manual for the machine. <i>4.6.4 Drop point</i>
Vane setting	Input of vane settings. The display is only for information purposes	Please observe the operator's manual for the machine.
Start calibration	Accessing the sub-menu for executing the calibration	<i>4.6.5 Calibration</i>
PTO	AXIS-M Influences the EMC mass flow control Factory setting: <ul style="list-style-type: none"> • AXIS-M 20.2/30.2: 540 rpm • AXIS-M 50.2: 750 rpm 	<i>4.6.6 PTO speed</i>
Spreading disc	Setting of the spreading disc type mounted on the mineral fertilizer spreader Influences the EMC mass flow control Selection list: <ul style="list-style-type: none"> • S1 • S2 • S4 • S6 • S8 	<i>4.6.7 Disc type</i>
Spreading disc	Setting of the spreading disc type mounted on the mineral fertilizer spreader Selection list: <ul style="list-style-type: none"> • M1C • M1XC • M2 	Selection with arrow keys, confirmation with the Enter key
Bound. sprd.type	Selection list: <ul style="list-style-type: none"> • Limited bd • Full bord. 	Selection with arrow keys, confirmation with the Enter key

Sub-menu	Meaning	Description
Bound. disc speed	Pre-setting the RPM in the boundary spreading mode	To be entered in a separate input window
TELIMAT Full bord./ Limited bd	Saving the TELIMAT settings for boundary spreading	Only for machines with TELIMAT sensor
Bound.quantity (%)	Pre-setting the application rate reduction in boundary spreading mode	To be entered in a separate input window
Fertilisation method	Selection list: <ul style="list-style-type: none"> • Normal • Late sprd. 	Selection with arrow keys Confirmation with the Enter key
Mounting height	Indicated in cm front/cm rear Selection list: <ul style="list-style-type: none"> • 0/6 • 40/40 • 50/50 • 60/60 • 70/70 • 70/76 	
Manufacturer	Fertilizer manufacturer input	
Composition	Percentage of the chemical composition	
Distance factor	Input of the distance factor from the fertilizer chart. Required for OptiPoint calculation	
Calculate OptiPoint	Input of the GPS control parameters	<i>4.6.9 Calculate OptiPoint</i>
GPS-Control info	Display of information of the GPS Control parameters	<i>4.6.10 GPS Control info</i>
Fertiliser chart	Management of fertilizer charts	<i>4.6.11 Fertilizer charts</i>
Calculate VariSpread	Calculation of values for adjustable sections	<i>4.6.12 Calculate VariSpread</i>

4.6.1 Application rate

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

- ▶ Access the menu Fertiliser settings > Appl. rate (kg/ha).

*The **currently applied** application rate is displayed.*

- ▶ Enter the new value in the input field. See 4.14.2 *Entering values*
- ▶ Press the **Enter key**.

The new value is saved in the machine control unit.

4.6.2 Setting the working width

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

- ▶ Access the menu Fertiliser settings > Working width (m).

*The **currently applied** working width is displayed.*

- ▶ Enter the new value in the input field.
- ▶ Press the **Enter key**.

The new value is saved in the control unit.

4.6.3 Flow factor

The flow factor lies within the range of **0.2** to **1.9**. With identical basic settings (driving speed, working width, application rate), the following applies:

- If the flow factor is **increased**, the dosing quantity is **reduced**
- If the flow factor is **reduced**, the dosing quantity is **increased**

An error message is displayed if the flow factor is outside the preset range. See chapter 6 *Alarm messages and possible causes*.

If you are spreading organic fertilizer or rice, you need to reduce the minimum factor to 0.2. Otherwise the error message will be displayed constantly.

If you have obtained the flow factor from earlier calibrations or from the fertilizer chart, enter it in this Manual selection window.



Via the Start calibration menu, the flow factor can be determined and entered using the control unit. See 4.6.5 *Calibration*

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



The flow factor calculation depends on the operating mode used. For further information about the flow factor, see 4.7.2 *AUTO/MAN mode*.

Entering the flow factor:

- ▶ Access the menu Fertiliser settings > Flow factor.

The currently set flow factor is displayed.

- ▶ Enter the value obtained from the fertilizer chart into the input field.



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

In **operating mode** AUTO km/h and MAN km/h, we highly recommend executing a **calibration** in order to be able to accurately determine the flow factor for this fertilizer.

- ▶ Press the **Enter key**.

The new value is saved in the control unit.

**AXIS-M EMC (+W)**

We recommend having the flow factor displayed in the working screen. By doing so, you are able to monitor the flow factor control during spreading. See *4.10.2 Display configuration* and *4.7.2 AUTO/MAN mode*

Minimum factor

The machine control unit automatically sets the minimum factor to one of the following values, depending on the entered value:

- The minimum factor is 0.2 if the entered value is less than 0.5
- The minimum factor is 0.4 if you enter a value over 0.5.

Display of flow factor with M EMC function (AXIS only)

Enter a value for the flow factor in the Flow factor sub-menu as a standard value. However, during spreading with the M EMC function activated, the control unit controls the left and the right metering slide openings separately. Both values are displayed in the operating screen.



When the Start/Stop key is pressed, the display updates the indicated flow factor with a slight delay. Subsequently, the display is updated in regular intervals.

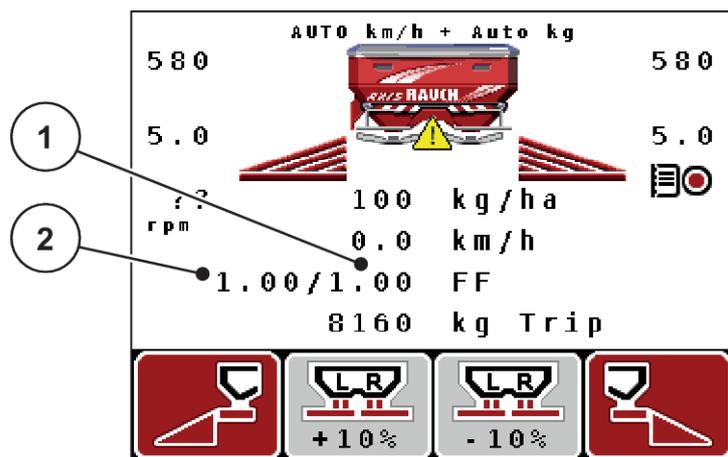


Fig. 26: Separate control of the left and right flow factor (M EMC function activated)

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

4.6.4 Drop point

AXIS-M Q V8



Entering the drop point for **Q variant** machines is merely informative and does not affect the settings of the fertilizer spreader.

In this menu, you can enter the drop point for information purposes.

- ▶ Access the menu Fertiliser settings > Drop point.
- ▶ Determine the position for the drop point using the fertilizer chart.
- ▶ Enter the determined value in the input field.
- ▶ Press the **Enter key**.

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

AXIS-M VS pro

With the AXIS EMC mineral fertilizer spreader, the drop point is set via the electrical drop point adjustment exclusively.

- ▶ Access the menu Fertiliser settings > Drop point.
- ▶ Determine the position for the drop point using the fertilizer chart.
- ▶ Enter the determined value in the input field.
- ▶ Press the **Enter key**.

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

If the drop point is blocked, alarm 17 is displayed; refer to 6.1 Meaning of the alarm messages.

⚠ CAUTION!**Risk of injury due to automatic adjustment of the drop point**

When the **Start/Stop** function key is pressed, the drop point is automatically moved to the preset value by an electrical actuator (Speedservo). This may cause injury.

- ▶ Before pressing the **Start/Stop** key, ensure that nobody is present in the hazard zone of the machine.
- ▶ Acknowledge the “Approach drop point” alarm message by pressing Start/Stop.

4.6.5 Calibration

The Start calibration menu is locked for the weighing spreaders function and for all machines in **operating mode** AUTO km/h + AUTO kg. This menu item is inactive.

In this menu, you can determine the flow factor based on a calibration and save it in the control unit.

Execute the calibration:

- Before spreading for the first time
- If the fertilizer quality has changed significantly (moisture, high dust content, granulate damage)
- If a new fertilizer type is used

The calibration must either be conducted with a running PTO at a standstill or while driving over a test section.

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

Entering the working speed:

- ▶ Access the menu Fertiliser settings > Start calibration.
- ▶ Enter the average working speed.
This value is required for calculation of the metering slide position during calibration.
- ▶ Press the **Enter key**.

The new value is saved.

The Approach drop point Yes = Start alarm message appears in the display (AXIS only).

⚠ CAUTION!

Risk of injury due to automatic adjustment of the drop point

When the **Start/Stop** function key is pressed, the drop point is automatically moved to the preset value by an electrical actuator (Speedservo). This may cause injury.

- ▶ Before pressing the **Start/Stop** key, ensure that nobody is present in the hazard zone of the machine.
- ▶ Acknowledge the "Approach drop point" alarm message by pressing Start/Stop.

- ▶ Press the **Start/Stop** key.

The drop point is activated.

The alarm is cleared.

The second calibration page is displayed.



- ▶ Set the spreader side on which the calibration is to be carried out.

Press the key to select the **left** spreading side, or

Press the key to select the **right** spreading side.

The icon indicating the selected spreading side has a red background.

⚠ WARNING!

Risk of injury during calibration

Rotating machine parts and discharged fertilizer could cause injury.

- ▶ Before starting the calibration, ensure that all requirements have been met.
- ▶ Observe the calibration chapter in the operator's manual for the machine.

- ▶ Press **Start/Stop**.

The metering slide of the previously selected section opens and the calibration is started.



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



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

- ▶ Press **Start/Stop** again.

The calibration is completed.

The metering slide closes.

The third calibration page is displayed.

WARNING!

Risk of injury due to rotating machine parts

Any contact with rotating machine parts (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 engine.
- ▶ Switch off the hydraulics system and secure it against unauthorized activation.

Calculating the new flow factor

- ▶ Weigh the collected weight (taking into account the empty weight of the collecting vessel).
- ▶ Enter the weight in the "Input collected weight:" menu item.
- ▶ Press the **Enter** key.

The new value is saved in the control unit.

*The display shows the menu **Calcul. flow factor***



The Flow factor must be between 0.4 and 1.9.

- ▶ Specify the flow factor.
To apply the newly calculated flow factor, press the **Enter key**.
To confirm the previously saved flow factor, press the **ESC** key.

The flow factor is saved.

The "Approach drop point" alarm message is displayed.

CAUTION!

Risk of injury due to automatic adjustment of the drop point

When the **Start/Stop** function key is pressed, the drop point is automatically moved to the preset value by an electrical actuator (Speedservo). This may cause injury.

- ▶ Before pressing the **Start/Stop** key, ensure that nobody is present in the hazard zone of the machine.
- ▶ Acknowledge the "Approach drop point" alarm message by pressing Start/Stop.

The calibration is completed.

4.6.6 PTO speed



Start or stop the transmission **at low PTO speeds only**.



For optimal Idle measurement, check the correct input in the Fertiliser settings menu.

- The entries in the Spreading disc and Normal disc speed or PTO menu items must correspond to 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 specify a different PTO speed, you must change the saved value in the control unit.

- ▶ Access the menu Fertiliser settings > PTO.
- ▶ Enter the speed in rpm.

The Fertilizer settings window is displayed with the new PTO speed.



Please observe Chapter 4.14.2 *Entering values*.

4.6.7 Disc type



For optimal empty run measurement, check the correct input in the Fertiliser settings menu.

- The settings in the Spreading disc and PTO menu items must correspond to the actual settings of your machine.

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

- ▶ Access the menu Fertiliser settings > Spreading disc.
- ▶ Activate the spreading disc type in the selection list.

The Fertiliser settings window is displayed with the new spreading disc type.

4.6.8 Boundary spreading quantity

In this menu, the application rate reduction for the TELIMAT boundary spreading unit can be set (as a percentage value). This setting is used for the activation of the boundary spreading function via the TELIMAT-Sensor sensor or the T key.



We recommend reducing the quantity on the boundary spreading side by 20 %.

Entering the boundary spreading application rate:

- ▶ Access the menu Fertiliser settings > Bound.quantity (%).
- ▶ Enter the value in the input field and confirm.

The Fertiliser settings window is displayed with the new boundary spreading application rate.

4.6.9 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**. For an accurate calculation, it is very important to enter the distance factor for the fertilizer used.



For the aerodynamic factor of the fertilizer used please refer to the fertilizer chart of the machine.

- ▶ Enter the required value in the menu Fertiliser settings > Distance factor.
- ▶ Access the menu Fertiliser settings > Calculate OptiPoint.

The first page of the Calculate OptiPoint menu is displayed.



The indicated forward speed refers to the forward speed in the area of the switching positions! See 4.6.10 GPS Control info

- ▶ Enter the average forward speed in the range of switching positions.
- ▶ Press the **Enter** key.

The third page of the menu is displayed.

GPS Control	
Recommended distances in reference to field edge	
Turn on dist. (m)	22.3
Turn off dist. (m)	12.0
Accept values	

Fig. 27: Calculate OptiPoint, page 3

No.	Meaning	Description
1	Distance from the field border (in meters) at which the metering slides open.	Fig. 56 Distance on (measured from field border)
2	Distance from the field border (in meters) at which the metering slides close.	Fig. 57 Distance off (measured from field border)



On this page, you can manually adjust the parameters. See chapter 5.8 *GPS control*.

Changing the values

- ▶ Open the desired list entry.
- ▶ Enter the new values.
- ▶ Press the Accept values button.

The OptiPoint has been calculated.

The machine control unit switches to the GPS Control Info window.

4.6.10 GPS Control info

The GPS-Control info menu informs you of the calculated setting values in the Calculate OptiPoint menu.

Depending on the terminal used, the display will show 2 distances (CCI, Müller Elektronik) or 1 distance and 2 time values (John Deere, etc.).

- With most ISOBUS terminals, the values displayed here are applied automatically to the corresponding settings menu of the GPS terminal.
- With some terminals, however, a manual entry is required.



This menu is for information purposes only.

- See the operating manual for your GPS terminal.

4.6.11 Fertilizer charts

In this menu, you can create and manage your own fertilizer charts.



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



You will be able to automatically manage fertilizer charts and transfer them from your control unit. You need a WiFi module (special equipment) and a smartphone to do this. See 2.7 *WiFi module*

You can create up to 30 fertilizer charts in the electronic machine control unit.

Creating a new fertilizer chart

- ▶ Access the menu Fertiliser settings > Fertiliser chart.

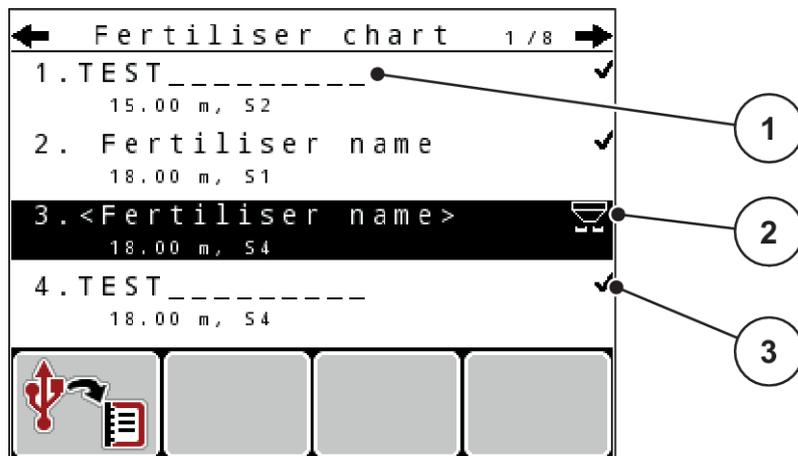


Fig. 28: Menu Fertiliser chart

- [1] Indicates a fertilizer chart filled with values [3] Fertilizer chart name field
 [2] Indicates an active fertilizer chart

- ▶ Highlight the name field of an empty fertilizer chart.
- ▶ Press the **Enter key**.

The display shows the selection window.

- ▶ Press the option Open and back to fertiliser settings.
- ▶ Press the **Enter key**.

The Fertiliser settings menu is displayed and the selected element is loaded into the fertilizer settings as the active fertilizer chart.

- ▶ Select the Fertiliser name menu item.
- ▶ Enter a name for the Fertiliser chart.



We recommend naming the fertilizer chart after the fertilizer. Specific fertilizers can thus be assigned to fertilizer charts more easily.

- ▶ Edit the parameters of the fertilizer chart. See 4.6 *Fertiliser settings in Expert-Mode*.

Selecting a fertilizer chart

- ▶ Access the menu Fertiliser settings > Fertiliser chart.
- ▶ Select the desired fertilizer chart.

The display shows the selection window.

- ▶ Select the option Open and back to fertiliser settings.

The Fertiliser settings menu is displayed and the selected element is loaded into the fertilizer settings as the active fertilizer chart.



When selecting an existing fertilizer chart, all values in the Fertiliser settings menu will be overwritten with the stored values obtained from the selected fertilizer chart, including the drop point and the PTO speed.

- **Machine with electrical drop point actuators:** The machine control unit will move the actuators of the drop point to the value stored in the fertilizer chart.

Copying an existing fertilizer chart

- ▶ Select the desired fertilizer chart.

The display shows the selection window.

- ▶ Select the option Copy element.

A copy of the fertilizer chart is now in the first free position on the list.

Deleting an existing fertilizer chart

- ▶ Select the desired fertilizer chart.

The display shows the selection window.



The active fertilizer chart cannot be deleted.

- ▶ Select the option Delete element.

The fertilizer chart is deleted from the list.

4.6.12 Calculate VariSpread

The VariSpread section assistant automatically calculates the section steps in the background. Your inputs for the working width and the drop point in the first pages of the fertilizer settings provide the basis for this.



Editing of the VariSpread table requires specialist knowledge. Please contact your dealer if you want to change the settings.

Fertiliser settings 4/4			
calculate VariSpread			
Width	drp.pt.	RPM	Applic.
8.00	0.0	540	AUTO
06.00	0.0	540	AUTO
04.00	0.0	540	AUTO
02.00	0.0	540	AUTO
0.00	0.0	540	AUTO

The table shows a grid of settings for fertilizer spread. The first row is the top header. The second row is the title 'calculate VariSpread'. The third row is the column headers: 'Width', 'drp.pt.', 'RPM', and 'Applic.'. The following four rows are data rows. The first data row has values 8.00, 0.0, 540, and AUTO. The next three data rows have values 06.00, 0.0, 540, AUTO; 04.00, 0.0, 540, AUTO; and 02.00, 0.0, 540, AUTO. The final data row has values 0.00, 0.0, 540, and AUTO. A circle labeled '2' points to the first data row. A circle labeled '1' points to the last three data rows.

Fig. 29: VariSpread calculation, example with 8 sections (4 on each side)

[1] Adjustable section settings

[2] Predefined section settings

Communication of the values to the GPS terminal

For machines with VariSpread pro, the values from the VariSpread table are automatically communicated to the GPS terminal. For machines with VariSpread V8, this depends on the GPS terminal.

4.7 Machine settings

In this menu, you can enter settings for the tractor and the machine.

- Access the menu Machine settings.

Machine settings 1/2	
Tractor (km/h)	
AUTO/MAN mode	
+/- appl. rate (%)	20
Idle measurement signal	✓
lbs level sensor	331
Easy toggle	

Fig. 30: Machine settings menu (example)



Not all parameters are displayed simultaneously on one screen. You can switch to the next or previous menu windows using the up/down arrow keys.

Sub-menu	Meaning	Description
Tractor (km/h)	Determining or calibrating the speed signal	<i>4.7.1 Forward speed calibration</i>
AUTO/MAN mode	Specifying automatic or manual operating mode	<i>4.7.2 AUTO/MAN mode</i>
+/- appl. rate (%)	Pre-setting the application rate change for the different spreading types	To be entered in a separate input window
Idle measurement signal	Only AXIS-M EMC: Activation of the signal tone when starting the automatic idle measurement	To be entered in a separate input window.
kg level sensor	Input of the remaining quantity to trigger an alarm message via the weigh cells	
Easy toggle	Restricts the L%/R% toggle key to two conditions	<i>4.7.5 Easy Toggle</i>
Appl. corr. L (%) Appl. corr. R (%)	Correction of the deviations between the entered application rate and the actual application rate <ul style="list-style-type: none"> • Correction in percent on the right and/or left side 	

4.7.1 Forward speed calibration

The speed calibration is the basic requirement for a precise spreading result. Factors such as tire size, a different tractor, all-wheel drive, slippage between tires and ground, ground characteristics, and tire pressure influence the speed measurement and therefore the spreading result.

Exact calculation of the number of speed pulses over 100 m is very important for the precise discharge of the fertilizer quantity.

Preparing the speed calibration

- ▶ Conduct the calibration on the field. This reduces the influence of the ground characteristics on the calibration result.
- ▶ Determine a 100 m long reference track as precisely as possible.
- ▶ Switch on all-wheel drive.
- ▶ Fill only half of the machine, if possible.

Accessing the speed settings

You can save up to 4 different profiles for the type and number of pulses and assign names to these pulses (e.g., tractor name).

Before spreading, check that the correct profile is opened in the control unit.

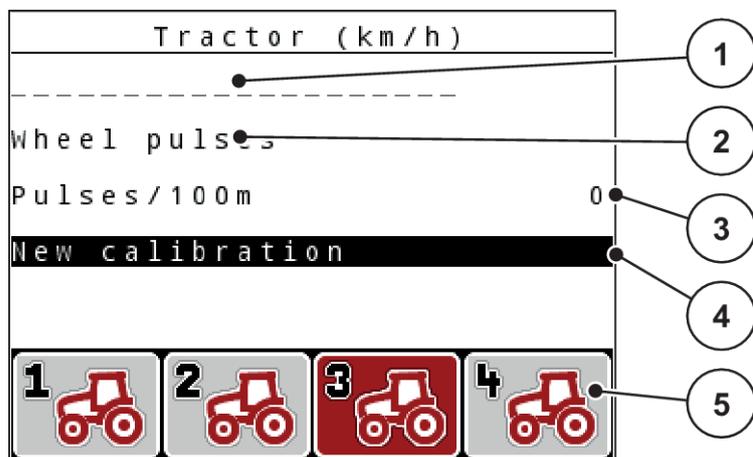


Fig. 31: Menu Tractor (km/h)

- | | |
|--|---|
| [1] Tractor type | [4] Tractor calibration sub-menu |
| [2] Transducer display for the speed signal | [5] Icons for memory locations of profiles 1 to 4 |
| [3] Display of the number of pulses over 100 m | |

Accessing a tractor profile

- ▶ Access the menu Machine settings > Tractor (km/h).
The displayed values for name, origin, and number of pulses refer to the profile highlighted in red.
- ▶ Press the function key (**F1-F4**) under the memory location icon.

Recalibrating the speed signal

You can either overwrite an existing profile or create a profile in an empty memory location.

- ▶ In the Tractor (km/h) menu, select the desired memory location using the function key below it.
- ▶ Select the New calibration field.
- ▶ Press the **Enter key**.

The display shows the Tractor calibration menu.

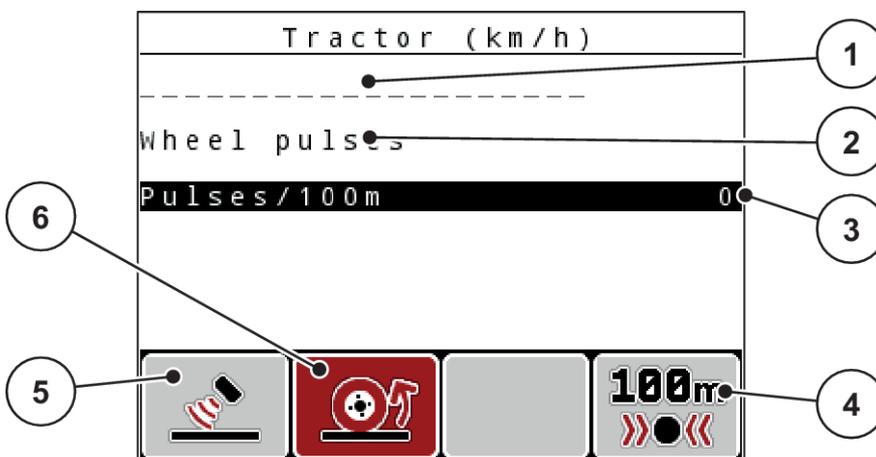


Fig. 32: Tractor (km/h) calibration menu

- | | |
|--|------------------------------------|
| [1] Tractor name field | [4] Automatic calibration sub-menu |
| [2] Display of the origin of the speed signal | [5] Radar pulse transducer |
| [3] Display of the number of pulses over 100 m | [6] Wheel pulse transducer |

- ▶ Select the **Tractor name field**.
- ▶ Press the **Enter key**.
- ▶ Enter the name of the profile.



The name is restricted to 16 characters.

We recommend using the name of the tractor for ease of understanding.

- See 4.14.1 Entering text

- ▶ Select the pulse transducer for the forward speed signal.
For **radar pulses**, press the **F1** function key [5].
For **wheel pulses**, press the **F2** function key [6].

The display shows the pulse transducer.

The number of pulses of the speed signal must still be specified below. If the exact pulse count is known, it can be entered directly:

- ▶ Access the menu item Tractor (km/h) > New calibration > Pulses/100m.

The Pulses menu is displayed for manual entry of the pulse count.

If the exact pulse count is **unknown**, start a **calibration**.

- ▶ Press the **F4** function key (100 m AUTO, [4])

The calibration run operating screen is displayed.

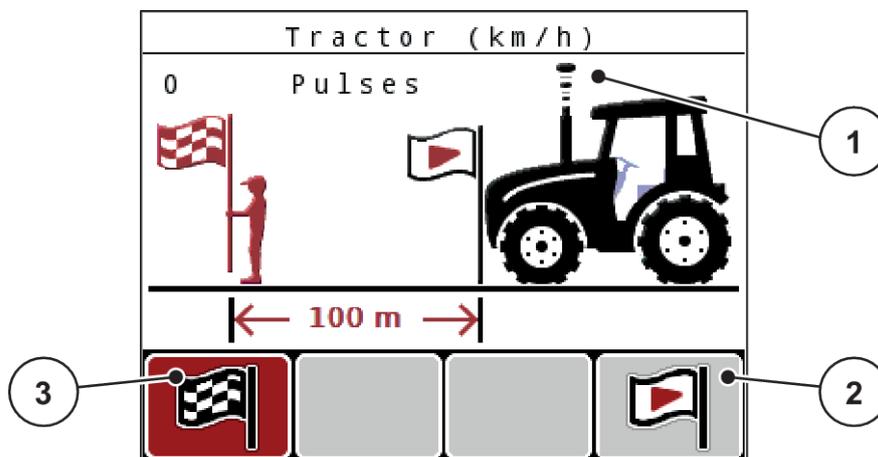


Fig. 33: Calibration run speed signal operating screen

- [1] Pulse display
- [2] Start recording pulses
- [3] Stop recording pulses

- ▶ Press the **F4** function key [2] at the starting position of the reference distance.

The pulse display is now zero.

The control unit is ready for counting pulses.

- ▶ Drive along the 100 m long reference distance.
- ▶ Stop the tractor at the end of the reference distance.
- ▶ Press the **F1** [3] function key.

The display shows the number of received pulses.

- ▶ Press the **Enter** key.

The new pulse count is saved.

The calibration menu is displayed again.

4.7.2 AUTO/MAN mode

The machine control unit automatically adjusts the dosing quantity according to the speed signal. This adjustment is influenced by the application rate, working width, and flow factor.

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

You only work in **manual** mode in the following cases:

- If there is no speed signal (radar or wheel sensor not available or defective)
- Application of slug pellets or seeds (fine seeds)



For uniform spreading of the spreading material, a **constant forward speed** must be applied in manual operating mode.



Spreading in different operating modes is described in *5 Spreading operation*.

Menu	Meaning	Description
AUTO km/h + AUTO kg	Selecting automatic mode with automatic weighing	Page 94
AUTO km/h	Selecting automatic mode	Page 96
MAN km/h	Adjustment of forward speed for manual mode	Page 97
MAN scale	Dosing slide adjustment for manual mode This operating mode is suitable for spreading slug pellets or fine seeds.	Page 97

Operating mode selection

- ▶ Start the machine control unit.
- ▶ Access the menu Machine settings > AUTO/MAN mode.
- ▶ Select the desired menu item from the list.
- ▶ Press OK.
- ▶ Follow the instructions on the screen.



We recommend having the flow factor displayed in the working screen. By doing so, you can observe the mass flow control during spreading. See *4.10.2 Display configuration*.

- Important information on the use of operating modes for spreading operations is provided in chapter *5 Spreading operation*.

AUTO km/h + AUTO kg: automatic mode with automatic mass flow control

The AUTO km/h + AUTO kg operating mode continuously adjusts the fertilizer quantity during spreading operation according to the forward speed and the flow behavior of the fertilizer. By doing so, an ideal dosing of the fertilizer can be achieved.



The AUTO km/h + AUTO kg operating mode is preselected as the standard factory default.

AUTO km/h: Automatic operating mode



To achieve an optimum spreading result, a calibration should be carried out before starting the spreading.

- ▶ Switch on the QUANTRON-A control unit.
- ▶ Access the menu Machine settings > AUTO/MAN mode.
- ▶ Select the AUTO km/h menu item.
- ▶ Press the **Enter key**.
- ▶ Fertilizer configuration:
 - ▷ Application rate (kg/ha)
 - ▷ Working width (m)
- ▶ Fill the hopper with fertilizer.
- ▶ Carry out a calibration to determine the flow factor
or
Determine the flow factor from the provided fertilizer chart.
- ▶ Press the **Start/Stop key**.

The spreading starts.

MAN km/h: Manual mode

- ▶ Switch on the QUANTRON-A control unit.
- ▶ Access the menu Machine settings > AUTO/MAN mode.
- ▶ Select the MAN km/h menu item.
- ▶ Press the **Enter key**.

The display shows the input window Forward speed.

- ▶ Enter the value for the forward speed during spreading.
- ▶ Press the **Enter key**.



To achieve an optimum spreading result, a calibration should be carried out before starting the spreading.

MAN scale: Manual operation with a scale value

- ▶ Switch on the QUANTRON-A control unit.
- ▶ Access the menu Machine settings > AUTO/MAN mode.
- ▶ Select the MAN scale menu item.
- ▶ Press the **Enter key**.

The display shows the input window Position of dosing slider.

- ▶ Enter the scale value for the metering slide opening.
- ▶ Press the **Enter key**.

The operating mode setting is saved.



For 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 fertilizer chart.

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

Requirement:

- The metering slides are open (activation with the **Start/Stop** key).
- In the MAN scale operating screen, the icons for the sections are filled in red.

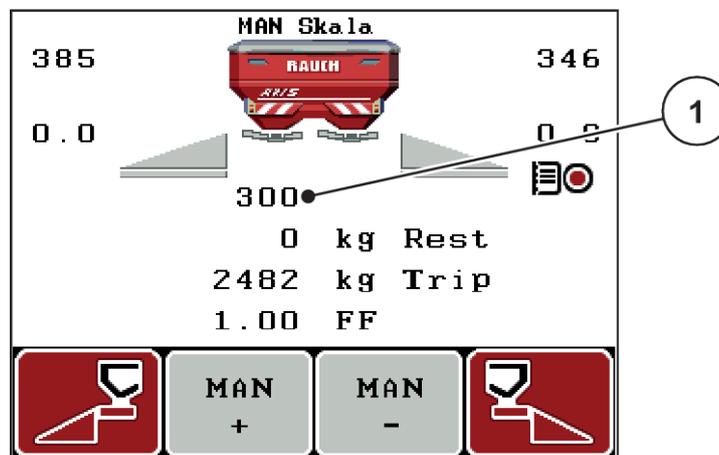


Fig. 34: Operating screen MAN scale

[1] Display of current metering slide scale position

- ▶ To change the metering slide opening, press the F2 or F3 function key.
 - ▷ **F2**: MAN+ to increase the metering slide opening
 - ▷ **F3**: MAN- to reduce the metering slide opening

4.7.3 +/- quantity

In this menu, you can set the percentage increment of the **application rate change** for normal spreading.

The base value (100%) is the preset value for the metering slide opening.



During operation, the **F2/F3** function keys can be used to adjust the application rate by the +/- Quantity factor at any time. The pre-configuration can be reset with the C 100% key.

Specifying the application rate reduction:

- ▶ Access the menu Machine settings > +/- appl. rate (%).
- ▶ Enter the percentage by which the application rate is to be adjusted.
- ▶ Press the **Enter key**.

4.7.4 Signal idle measurement

Here, you can activate or deactivate the signal tone for carrying out the idle measurement.

- ▶ Select the Idle measurement signal menu item
- ▶ Activate the option by pressing the Enter key.

A check mark is displayed.

The signal sounds when an automatic idle measurement starts.

- ▶ Deactivate the option by pressing the Enter key again.

The check mark disappears.

4.7.5 Easy Toggle

Here, the toggle function of the **L%/R%** key can be limited to 2 conditions of the F1 to F4 function keys. By doing so, you can avoid unnecessary toggling action in the operating screen.

- ▶ Select the **Easy Toggle** sub-menu.
- ▶ Press the **Enter key**.

A check mark is displayed.

The option is active.

*In the operating screen, the **L%/R%** key can only be used to switch between the functions application rate change (L+R) and section management (VariSpread).*

- ▶ Press the **Enter key**.

The check mark disappears.

*You can use the **L%/R%** key to switch between the 4 different conditions.*

Assignment of function keys	Function
	Application rate change on both sides
	Application rate change on the right side Hidden if the function is activated Easy Toggle
	Application rate change on the left side Hidden if the function is activated Easy Toggle
	Increase or reduce sections

4.8 Fast emptying

In order to quickly clean the machine after spreading or to quickly empty any residual material, you can select the Fast emptying menu.

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



Before starting the fast emptying process, care must be taken to ensure that all requirements have been met. Observe the operator's manual for the mineral fertilizer spreader (discharging residual material).

- ▶ Access the menu Main menu > Fast emptying.

⚠ CAUTION!

Risk of injury due to automatic adjustment of the drop point

With **AXIS EMC**, the Approach drop point Yes = Start alarm message appears. When you press the Start/Stop function key, the drop point automatically moves to position 0. After the calibration, the drop point automatically moves to the preset value again. This may cause injury and property damages.

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

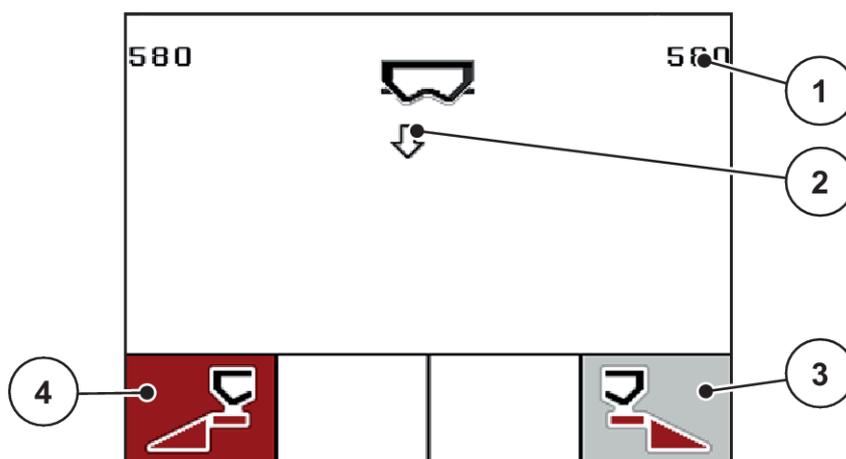


Fig. 35: Fast emptying menu

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

- ▶ Press the **function key** to select the section for which the fast emptying function is to be carried out.

The selected section is shown as an icon in the display.

- ▶ Press **Start/Stop**.

The fast emptying process starts.

- ▶ Press **Start/Stop** when the hopper is empty.

Fast emptying is complete.

With machines equipped with electrical drop point actuators, the Approach drop point Yes = Start alarm message is activated.

- ▶ Press **Start/Stop**.

The alarm is acknowledged.

The electrical actuators move to the preset value.

- ▶ Press the **ESC** key to return to the main menu.

4.9 Field data

In this menu, you can create and manage up to 200 field data files.

- ▶ Access the menu Main menu > Field data.

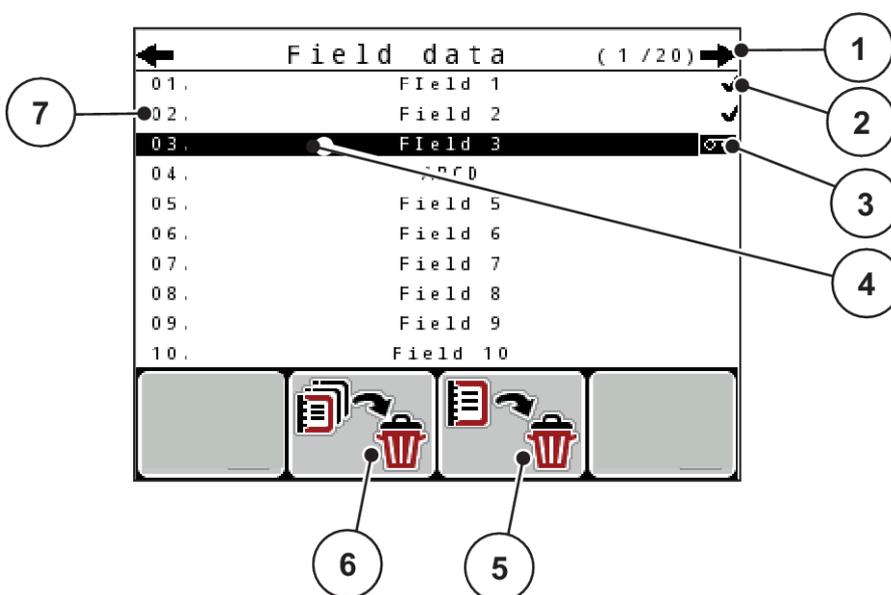


Fig. 36: Menu Field data

- | | |
|----------------------------------|--|
| [1] Display of page number | [5] F3 function key: Delete field data |
| [2] Display of filled field data | [6] F2 function key: Delete all field data |
| [3] Display of active field data | [7] Display of memory location |
| [4] Name of field data | |

4.9.1 Selecting a field data file

Already saved field data files can be selected and processed again. The data already saved in the field data is not overwritten; instead the new values are added.

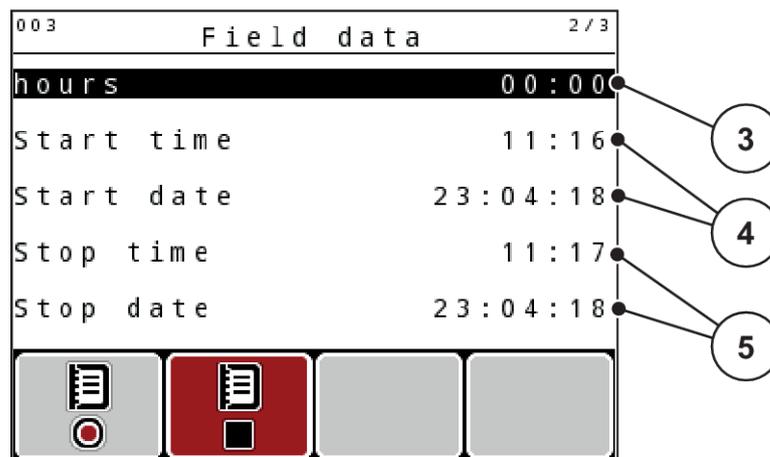
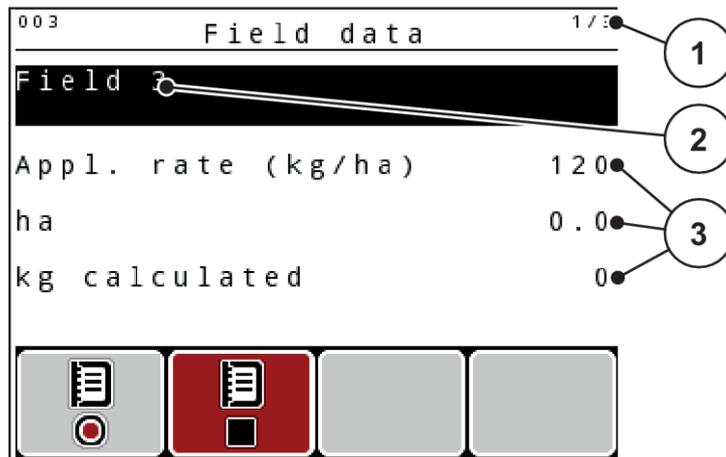


Press the left/right arrow keys to browse forward and back through the pages in the Field data Field data menu.

- ▶ Select the required field data.
- ▶ Press the **Enter key**.

The first page of the current field data is displayed.

4.9.2 Start the recording



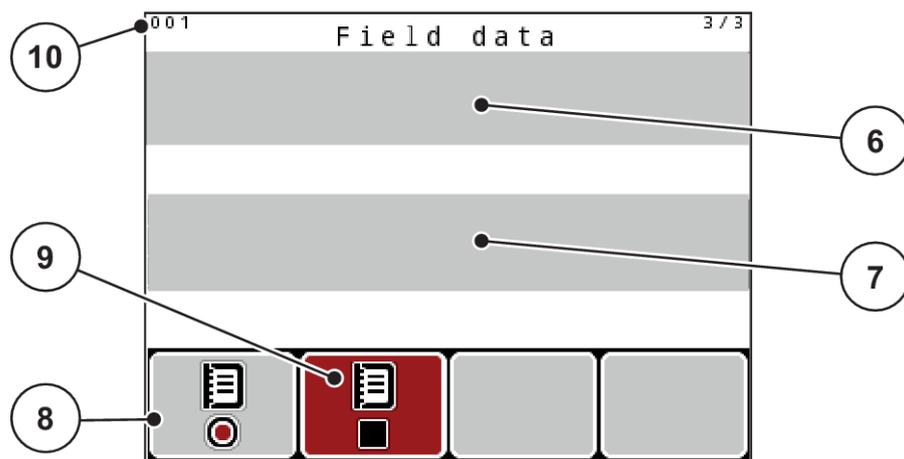


Fig. 37: Display of current field data

- | | |
|------------------------------------|---|
| [1] Display of the page number | [6] Name field of fertilizer |
| [2] Field data name | [7] Name field of fertilizer manufacturer |
| [3] Value fields | [8] Function key Start |
| [4] Display of the start time/date | [9] Function key Stop |
| [5] Display of the stop time/date | [10] Display of memory location |

In this menu, you can create and manage up to 200 field data files.

► Press the **F1** function key under the start icon.

The recording starts.

The Field data menu displays the recording icon for the current field data file.

The operating screen displays the recording icon.



If a different field data file is opened, the current field data file is stopped. The active field data file cannot be deleted.

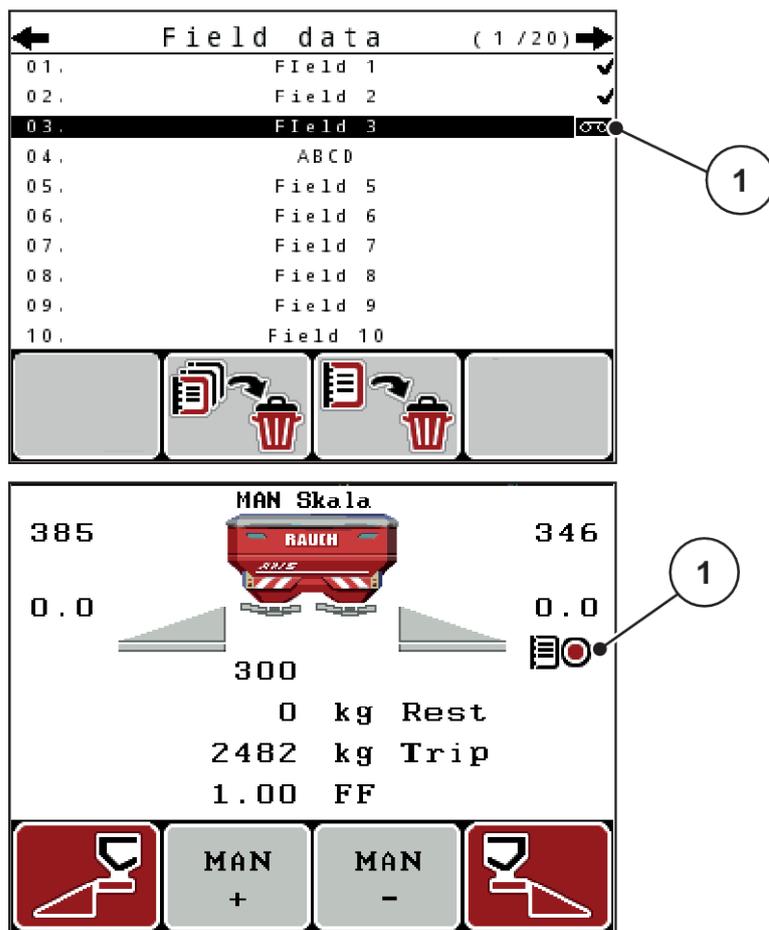


Fig. 38: Recording icon display

[1] Recording icon

4.9.3 Stopping the recording

- ▶ In the Field data menu, access the first page of the active field data file.
- ▶ Press the **F2** function key below the stop icon.

Recording is finished.

4.9.4 Deleting field data

The QUANTRON-A control unit allows deleting of recorded field data.



Only the content of the field data will be deleted, the field data name will still be displayed in the name field!

Deleting a field data file

- ▶ Access the menu Field data.
- ▶ Select a field data file from the list.
- ▶ Press the **F3** function key below the **Delete** icon. See (→ 69)

The selected field data file has been deleted.

Deleting all field data

- ▶ Access the menu Field data.
- ▶ Press the **F2** function key below the **Delete all** icon. See 6 *F2 function key: Delete all field data*
A message appears indicating that all data will be deleted (see 6.1 Meaning of the alarm messages)
- ▶ Press the **Start/Stop** key.

All field data is deleted.

4.10 System/Test

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

- ▶ Access the menu Main menu > System/Test.

System / Test		1 / 2
Brightness		
Language		
Display configuration		
Mode	Expert	
Test/diagnosis		
Date	23.04.18	
Time	11:18	

Fig. 39: System/test menu

Sub-menu	Meaning	Description
Brightness	Display settings	The settings can be adjusted with the function keys + and -
Language	Language setting for menu navigation	4.10.1 <i>Setting the language</i>

Sub-menu	Meaning	Description
Display configuration	Setting the displays on the operating screen	<i>4.10.2 Display configuration</i>
Mode	Setting the menu mode <ul style="list-style-type: none"> • Expert • Easy <p>In the EMC function, the mode is automatically set to Expert</p>	<i>4.10.3 Setting the mode</i>
Test/diagnosis	Checking of actuators and sensors	<i>4.10.4 Test/diagnosis</i>
Date	Setting the date	<ul style="list-style-type: none"> • Selection and modification of the setting with the arrow keys • Confirmation with Enter key
Time	Setting the time	<ul style="list-style-type: none"> • Selection and modification of the setting with the arrow keys • Confirmation with Enter key
Data transmission	Menu for data exchange and serial protocols	<i>4.10.5 Data transmission</i>
Total data counter	Display list <ul style="list-style-type: none"> • spread quantity in kg • spread area in ha • spread time in h • distance traveled in km 	<i>4.10.6 Total data counter</i>
Unit	Display of values in the selected unit system: <ul style="list-style-type: none"> • metric • English 	<i>4.10.8 Changing the system of units</i>
Service	Service settings	Password-protected; only accessible for service personnel

4.10.1 Setting the language

In the control unit, several languages can be set.

The language package for your country is pre-set at the factory.

- ▶ Access the System/Test > Language menu.

The display shows the first of four pages.

Sprache - Language		1/4
deutsch	DE	✓
Français	FR	
English	UK	
Nederlands	NL	
Italiano	IT	
Español	ES	
русский	RU	

Fig. 40: Language sub-menu, page 1

- ▶ Select the language for the menus.



The languages are listed in several menu windows. The arrow keys enable switching to the next or previous windows.

- ▶ Press the **Enter key**.

The selection is confirmed.

The QUANTRON-A control unit restarts automatically.

The menus are displayed in the selected language.

4.10.2 Display configuration

The three display fields in the operating screen can be individually adjusted and assigned the following values as desired:

- Forward speed
- Flow factor (FF)
- ha trip
- kg trip
- m trip
- kg left
- m left
- ha left
- Idle time (Time until the next idle measurement)
- Torque for the spreading disc drive

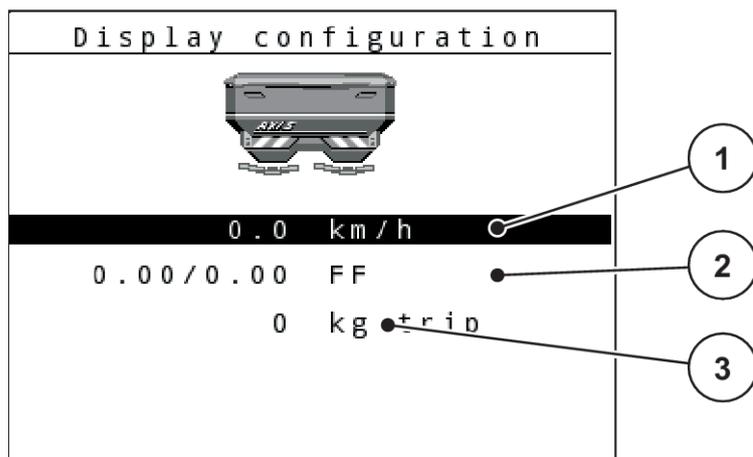


Fig. 41: Display fields

[1] Display field 1

[3] Display field 3

[2] Display field 2

Select display

- ▶ Access the menu System/Test> Display configuration.
- ▶ Select the required display field.
- ▶ Press the **Enter key**.

The available options are displayed in a list.

- ▶ Select the new value to be assigned to the display field.
- ▶ Press the **Enter key**.

The operating screen is displayed.

The respective display field displays the new value.

4.10.3 Setting the mode

In the QUANTRON-A control unit, 2 different modes are available.

- Easy
- Expert



In the M EMC function, the mode is automatically set to expert.

- In the **Easy** mode, only the parameters of the **fertilizer settings** required for spreading can be accessed: It is not possible to create or manage fertilizer charts.
- In **Expert** mode, all available parameters can be accessed in the **Fertilizer settings** menu.

Selecting a mode

- ▶ Select the menu item System/Test > Mode.
- ▶ Press the **Enter key**.

The display shows the current mode.

Press the **Enter key** to switch between the two modes.

4.10.4 Test/diagnosis

In the Test/diagnosis menu, you can check the functions of all actuators and sensors.



This menu is for information purposes only.

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

CAUTION!

Risk of injury due to moving machine parts

During the tests, machine parts may move automatically.

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

Sub-menu	Meaning	Description
Test points slider	Test for approaching the various position points of the metering slides	Calibration check
Metering slider	Moving the left and right metering slides	<i>Example: metering slides</i>
Voltage	Checking the operating voltage	
Level sensor	Checking the level sensors	
Weigh cell	Checking the sensors	
EMC sensors	Checking the EMC sensors	
Test points drop pt.	Approaching the drop point	Calibration check
LIN bus	Checking the assemblies registered via LIN bus	<i>Example: LIN bus</i>
TELIMAT sensor	Checking the TELIMAT sensors	
Sensor brd.spread	Checking the sensors for the border spreading unit	<i>Example: GSE sensor</i>
Hopper cover	Checking the actuators	

Sub-menu	Meaning	Description
SpreadLight	Checking the operating lights	

Example: metering slides**⚠ CAUTION!****Risk of injury due to moving machine parts**

During the tests, machine parts may move automatically.

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

- ▶ Access the menu System/Test > Test/diagnosis
- ▶ Select the menu Metering slider.
- ▶ Press the **Enter** key.

The status of the motors/sensors is displayed.

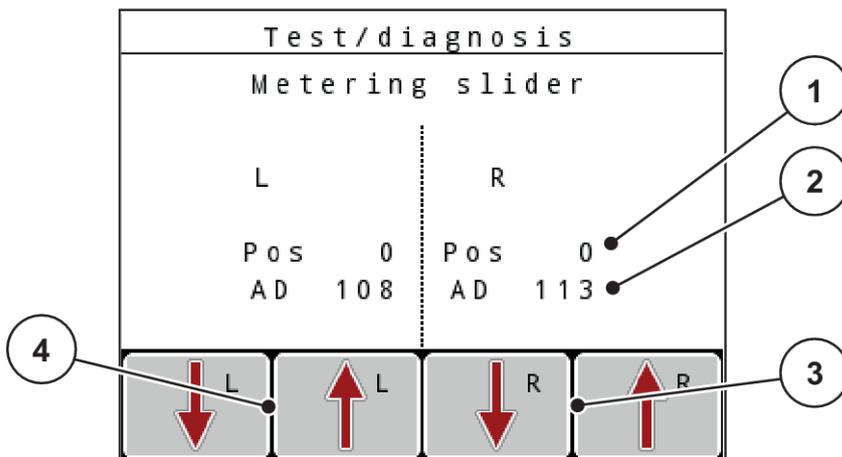


Fig. 42: Test/diagnosis; example: Metering slide

- [1] Position display
- [2] Signal display
- [3] Function keys for right actuator
- [4] Function keys for left actuator

The Signal display shows the status of the electrical signals for the left and right side separately.

You can open and close the metering slides with the up/down arrows.

Example: LIN bus

- ▶ Access the menu System/Test > Test/diagnosis
- ▶ Select the LIN bus menu item.
- ▶ Press the **Enter key**.

The status of the actuators/sensors is displayed.

Linbus					
	Ver	Mfr	Fnc	Stat	
DP right	0 . 0 . 0	0	0	0	---
DP left	0 . 0 . 0	0	0	1	---
TELIMAT	0 . 0 . 0	0	0	0	---
Hopper cover	0 . 0 . 0	0	0	0	---
Start self-test					

Fig. 43: Test/diagnosis; example: LIN bus

- [1] Status display
[2] Start self-test

- [3] Connected equipment

LIN bus device status notification

The devices indicate various conditions:

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

Example: GSE sensor

⚠ CAUTION!

Risk of injury due to moving machine parts

During the tests, machine parts may move automatically.

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

- ▶ Access the menu System/Test > Test/diagnosis
- ▶ Select the Sensor brd.spread menu item.
- ▶ Press the **Enter key**.

The status of the actuators/sensors is displayed.

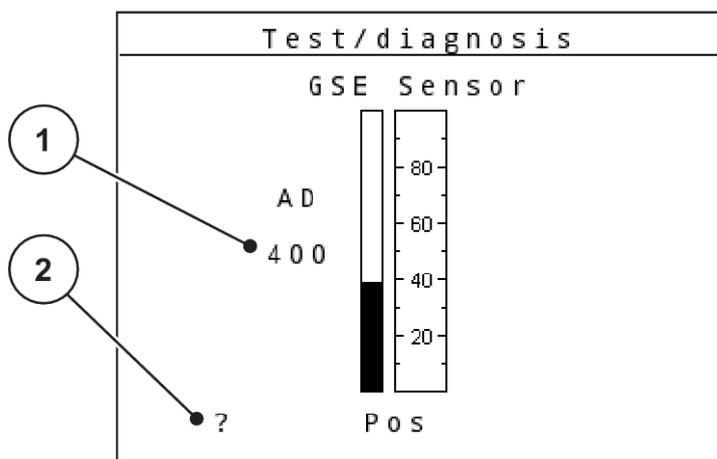


Fig. 44: Test/diagnosis; example: GSE sensor

[1] Status display

[2] Sensor position display

Sensor position display

The sensors report the position of the border spreading unit:

- **O** = Up; the border spreading unit is inactive.
- **U** = Down; the border spreading unit is in working position.
- **?** = the border spreading unit has not yet reached its end position.

4.10.5 Data transmission

Data transmission is carried out using various data protocols.

Sub-menu	Meaning
ASD	Automatic field documentation; transmission of field data to a PDA and/or Pocket PC via Bluetooth
LH5000	Serial communication, e.g., spreading using application maps
GPS Control	Protocol for automatic section control using an external terminal
GPS Control VRA	VRA : Variable Rate Application Protocol for the automatic transmission of the target application rate
TUVR	Protocol for automatic section control and application rate change for specific sub-areas with an external Trimble terminal

Sub-menu	Meaning
GPS km/h	<p>Only possible with TUVR protocol and Trimble terminal.</p> <ul style="list-style-type: none"> • Can be activated/deactivated <p>If activated, the speed signal of the GPS device is used as a signal source for the AUTO km/h operating mode.</p> <ul style="list-style-type: none"> ▶ Select the menu item using the bar. ▶ Press the Enter key. <p>A check mark appears on the screen.</p> <p>GPS km/h is active. The speed signal of the GPS device is used as a signal source for the AUTO km/h operating mode.</p>

4.10.6 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 traveled in km



This menu is for information purposes only.

4.10.7 Service



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

4.10.8 Changing the system of units

Your system of units has been preset at the factory. However, the system can be changed from metric to English units at any time.

- ▶ Access the menu System/Test.
- ▶ Select the menu Unit.
- ▶ Press the **Enter key** to switch between imperial and metric.

All values of the various menus are converted.

Menu/value	Conversion of metric to imperial units
kg left	1 x 2.2046 lb.-mass (lbs left)
ha left	1 x 2.4710 ac (ac left)
Working width (m)	1 x 3.2808 ft
Rate (kg/ha)	1 x 0.8922 lbs/ac
Mounting height cm	1 x 0.3937 in

Menu/value	Conversion of metric to imperial units
lbs left	1 x 0.4536 kg
ac left	1 x 0.4047 ha
Working width (ft)	1 x 0.3048 m
Appl. rate (lb/ac)	1 x 1.2208 kg/ha
Mounting height in	1 x 2.54 cm

4.11 Info



The Info menu provides information on the machine control unit.



This menu provides information on the configuration of the machine.

The information list depends on the equipment of the machine.

4.12 Operating lights (SpreadLight)

Only for AXIS (special equipment)

In this menu, you can activate the SpreadLight function, to monitor the spreading pattern even in night mode.

You can switch the operating lights on and off in the automatic and/or manual mode via the machine control unit.

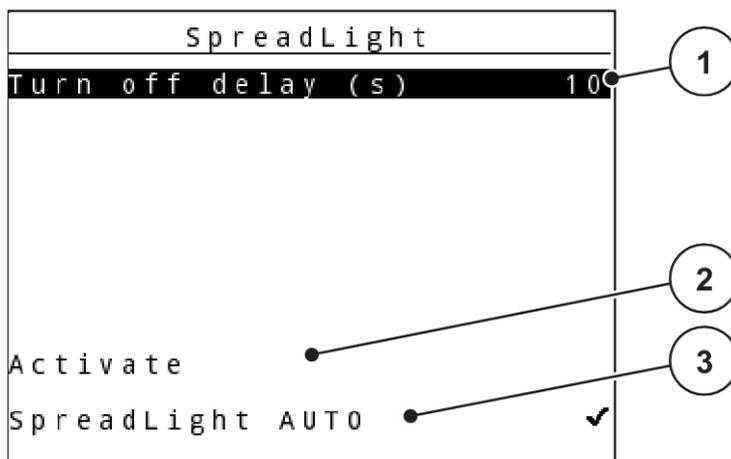


Fig. 45: SpreadLight menu

[1] Turn off duration

[3] Activate automatic mode

[2] Manual mode: Switch on operating lights

Automatic mode:

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

- ▶ Access the menu Main menu > SpreadLight.
- ▶ Put a check mark in the menu item SpreadLight AUTO [3].

The operating lights are switched on when the metering sliders open.

- ▶ Enter the Turn off delay (s) [1] in seconds.

The operating lights will switch off at the end of the entered time, if the metering slides are closed.

Range from 0 to 100 seconds.

- ▶ Remove the check mark in the menu item SpreadLight AUTO [3].

The automatic mode is deactivated.

Manual mode:

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

- ▶ Access the menu Main menu > SpreadLight.
- ▶ Put a check mark in the menu item Activate [2].

The operating lights are activated and remain on until you remove the check mark or leave the menu.

4.13 Hopper cover

Only for AXIS (special equipment)

! WARNING!

Danger of crushing and shearing due to externally-actuated components

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

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

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



The menu is only used for operating the actuators which open or close the hopper cover. The machine control unit does not detect the exact position of the hopper cover.

Observe the movements of the hopper cover.

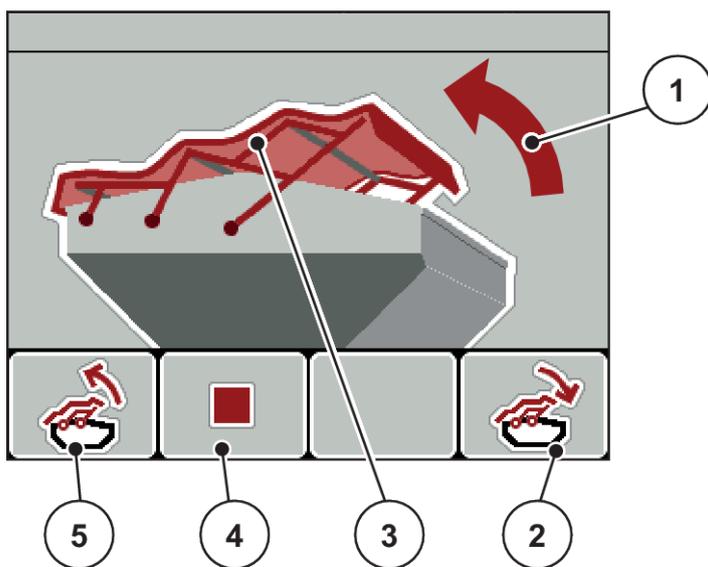


Fig. 46: Hopper cover menu

- | | |
|---|--|
| [1] Opening process display | [4] F2 function key: Stop process |
| [2] F4 function key: Close hopper cover | [5] F1 function key: Open hopper cover |
| [3] Static display of the 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 lever of the hopper cover may be broken and the hopper cover may damage the environment.

- ▶ Ensure that there is sufficient clearance over the hopper cover.

Moving the hopper cover

- ▶ Press the **Menu** key.
- ▶ Access the menu Hopper cover.



- ▶ Press the **F1** function key.

*During the movement, an arrow appears which indicates the **OPEN** direction.*

The hopper cover will open fully.

- ▶ Pour in fertilizer.



- ▶ Press the **F4** function key.

*During the movement, an arrow appears which indicates the **CLOSE** direction.*

The hopper cover will be closed.



If required, you can stop the movement of the hopper cover by pressing the **F2** function key. The hopper cover then remains in the intermediate position until you close or open it completely.

4.14 Special functions**4.14.1 Entering text**

In some menus, you can enter freely editable text.

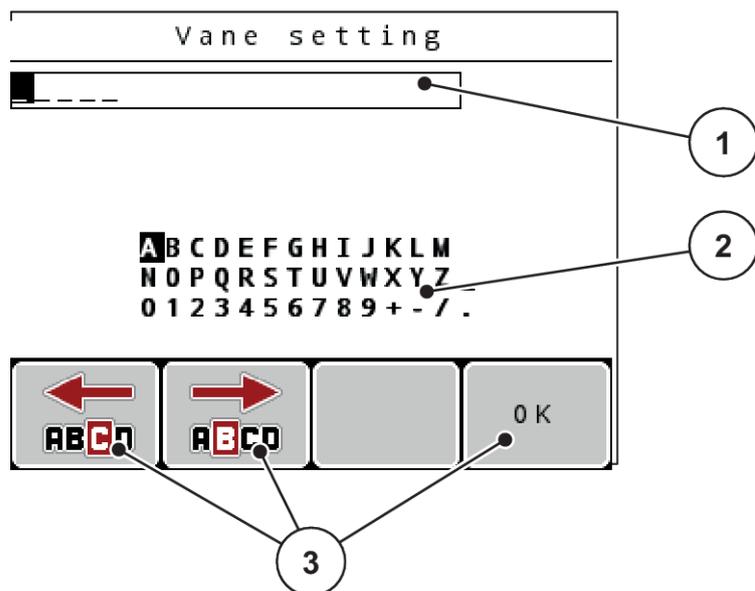


Fig. 47: Text input menu

- | | |
|---|---|
| [1] Input field | [3] Function keys for navigation in the input field |
| [2] Character field, display of available characters (language-dependent) | |

Entering text:

- ▶ Switch from the higher-level menu to the Text input menu.
- ▶ Use the **function keys** to move the cursor to the position of the character to be written first in the input field
- ▶ Use the **arrow keys** to select the character to be written in the character field.
- ▶ Press the **Enter key**.

The highlighted character appears in the input field.

The cursor jumps to the next position.

- ▶ Continue until the entire text is entered.
- ▶ Press the **F4/OK** function key.

The input is confirmed.

The control unit saves the text.

The display shows the previous menu.

Single characters can be overwritten by another character.

Overwriting characters:

- ▶ Use the **function keys** to move the cursor to the position of the character to be deleted in the input field.
- ▶ Use the **arrow keys** to select the character to be written in the character field.
- ▶ Press the **Enter key**.

The character is overwritten.

- ▶ Press the **F4/OK** function key.

The input is confirmed.

The control unit saves the text.

The display shows the previous menu.



It is not possible to delete individual characters. Individual characters can only be replaced with a blank space (underline at the end of the first 2 character lines).

The complete input can be deleted.

**Deleting an input:**

- ▶ Press the **C 100%** key.

The complete input is deleted.

- ▶ Enter new text, if necessary.
- ▶ Press the **F4/OK** function key.

4.14.2 Entering values

In some menus, you can enter numerical values.

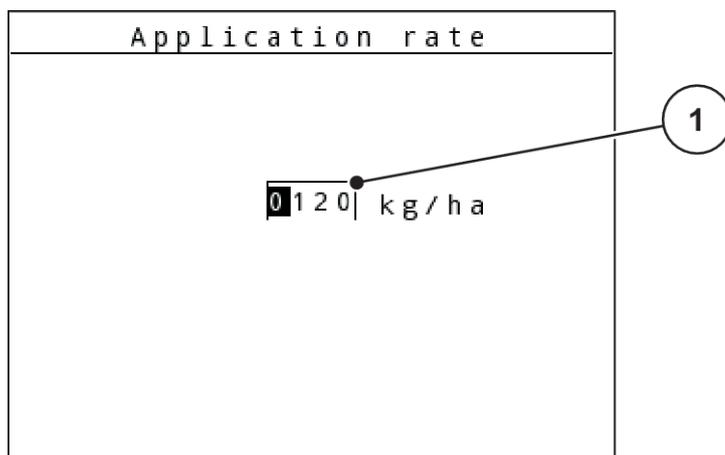


Fig. 48: Input of numerical value (example: application rate)

[1] Input field

Requirement:

You are already in the menu where you enter the numerical value.

- ▶ Use the horizontal arrow keys to move the cursor to the position of the numerical value to be written in the input field.
- ▶ Use the vertical arrow keys to enter the required numerical value.

Arrow up: Value increases.

Arrow down: Value decreases.

Arrow left/right: Cursor moves to the left/right.

- ▶ Press the **Enter key**.



Deleting an input:

- ▶ Press the **C 100%** key.

The complete input is deleted.

4.14.3 Creating screenshots



With every software update, data will be overwritten. We recommend always storing your settings as screenshots on a USB stick before implementing a software update.

Use a USB stick with an illuminated status indicator (LED).

- ▶ Remove the cover from the USB port.
- ▶ Insert a USB stick into the USB port.

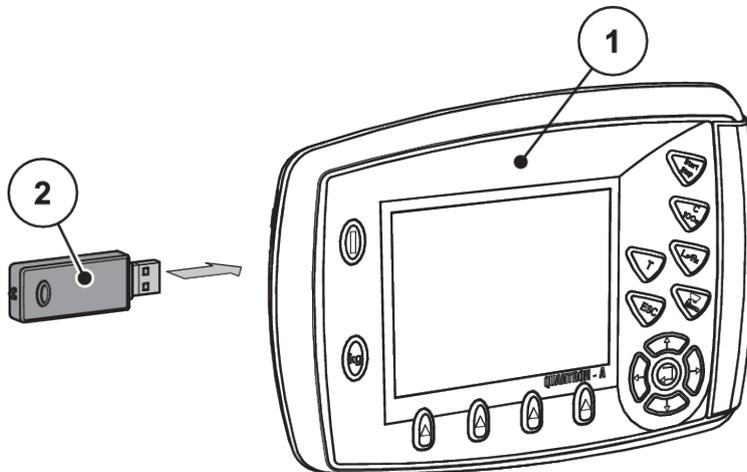


Fig. 49: Inserting a USB stick

[1] Control unit

[2] USB stick

- ▶ Access the menu Main menu > Fertiliser settings.

The first page of the fertilizer settings is displayed.

- ▶ Press the **T** key and the **L%/R%** key **simultaneously**.

The status indicator of the USB stick flashes.

The control unit beeps twice.

An image is stored as bitmap on the USB stick.

- ▶ Store all fertilizer settings pages as screenshots.

- ▶ Access the menu Main menu > Machine settings.

The first page of the machine configuration is displayed.

- ▶ Press the **T** key and the **L%/R%** key **simultaneously**.

The status indicator of the USB stick flashes.

The control unit beeps twice.

An image is stored as bitmap on the USB stick.

- ▶ Save both pages of the Machine settings menu as screenshots.

- ▶ Store all screenshots on your PC.

- ▶ After the software update, open the screenshots and enter the settings in the QUANTRON-A control unit based on the screenshots.

The QUANTRON-A control unit is ready to operate with your settings.

5 Spreading operation

The machine control unit helps you to enter the machine settings before starting work. During spreading, functions of the machine control unit are also active in the background. This allows you to monitor the quality of the fertilizer spreading.



Start or stop the transmission **at low PTO speeds only**.

5.1 TELIMAT border spreading unit

CAUTION!

Risk of injury due to automatic adjustment of the TELIMAT unit!

When the **boundary spreading key** is pressed, an electrical positioning cylinder automatically moves the machine to the boundary spreading position. This may cause injury and property damages.

- ▶ Before pressing the **boundary spreading key**, make sure that nobody is present in the hazard zone of the machine.



The TELIMAT option is preset for the control unit at the factory!

TELIMAT with hydraulic remote control

The TELIMAT unit is hydraulically moved to its working or idle position. You can activate and deactivate the TELIMAT unit by pressing the Limited border spreading key. Depending on the position, the display shows or hides the **TELIMAT icon**.

TELIMAT with hydraulic remote control and TELIMAT sensors

If TELIMAT sensors are connected and activated, the **TELIMAT icon** is shown on the display of the control unit when the TELIMAT boundary spreading unit is hydraulically moved into its operating position.

If the TELIMAT unit is moved back to the idle position, the **TELIMAT icon** is hidden again. The sensors monitor the TELIMAT adjustment and automatically activate or deactivate the TELIMAT unit. The boundary spreading key has no function with this option.

If the status of the TELIMAT unit cannot be detected for more than 5 seconds, alarm message 14 will be displayed; see *6.1 Meaning of the alarm messages*.

5.2 GSE sensor

If a sensor for the GSE 30/GSE 60 boundary spreading unit is connected and activated, the GSE icon is shown on the display of the control unit when the boundary spreading unit is hydraulically moved into its operating position; see *Fig. 3 Control unit display – example AXIS-M operating screen*. If the boundary spreading unit is moved back to the idle position, the GSE icon is hidden again.

During adjustments, a ? symbol is displayed on the machine control unit display, which disappears once the working position is reached. The sensor monitors the position of the GSE boundary spreading unit. If the status of the boundary spreading unit cannot be detected for more than 5 seconds, alarm message 94 will be displayed; see *6.1 Meaning of the alarm messages*

5.3 Working with sections

5.3.1 Spreading with reduced sections

You can spread fertilizer to sections on one or both sides, to adapt the full spreading width to the field requirements. Each spreading side can be adjusted in 4 preset sections (VariSpread 8) or infinitely variable sections (VariSpread pro).



- See *2.1 Overview of supported machines*
- Press the L%/R% key until the desired function keys are displayed.

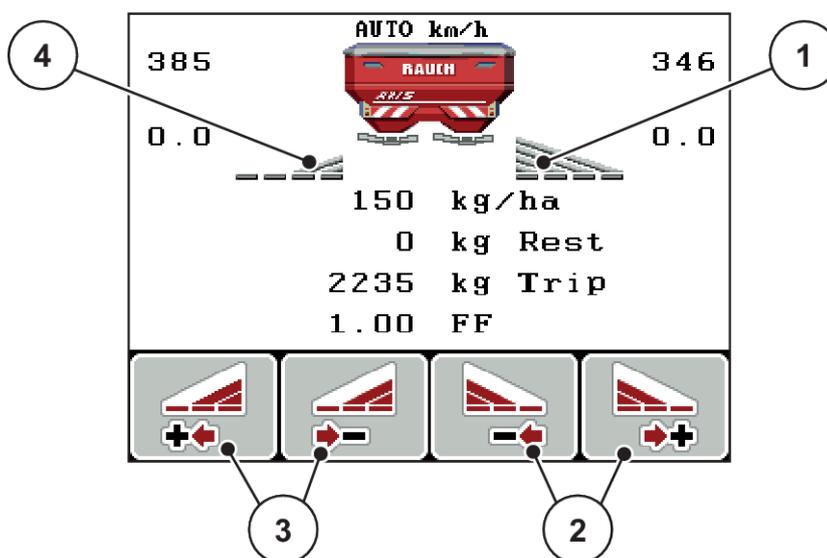


Fig. 50: Operating screen for spreading operation with sections

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



Each section can be reduced or increased in 4 steps or continuously.

- ▶ Press the **Reduce left spreading width** function key or the **Reduce right spreading width** function key.

The section of the spreading side will be reduced by one step.

- ▶ Press the **Increase left spreading width** function key or the **Increase right spreading width** function key.

The section of the spreading side will be increased by one step.



The sections are not graded proportionally. The spreading width can be set via the VariSpread spreading width assistant.

- See 4.6.12 Calculate VariSpread

5.3.2 Spreading operation with one section and in boundary spreading mode

AXIS-M V8, MDS V8

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

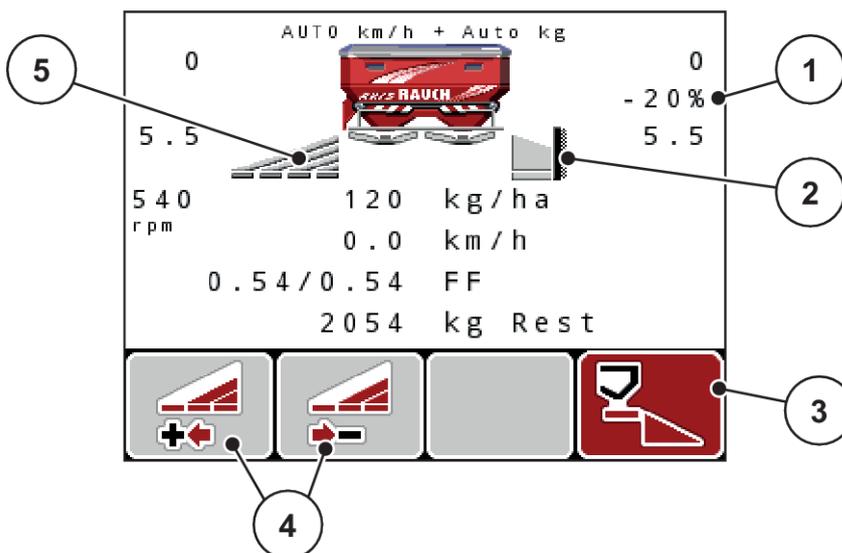


Fig. 51: Operating screen with one section on the left, boundary spreading on the right

- | | |
|---|--|
| [1] Display of application rate change in boundary spreading mode | [3] The right spreading side is activated. |
| [2] The right spreading side is in boundary spreading mode. | [4] Reduce or increase left section |
| [5] Left section adjustable in 4 steps (VariSpread 8) | |

- The application rate on the left is set to the full working width.
- The right boundary spreading function key has been pressed, boundary spreading is active, and the application rate is reduced by 20%.
- Press the Reduce left spreading width function key in order to reduce the section by one step.
- If you press the C/100% function key, the full working width will be reapplied immediately.
- Only for **TELIMAT** versions without sensor: If you press the **T** key, boundary spreading is deactivated.

AXIS-M VariSpread pro

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

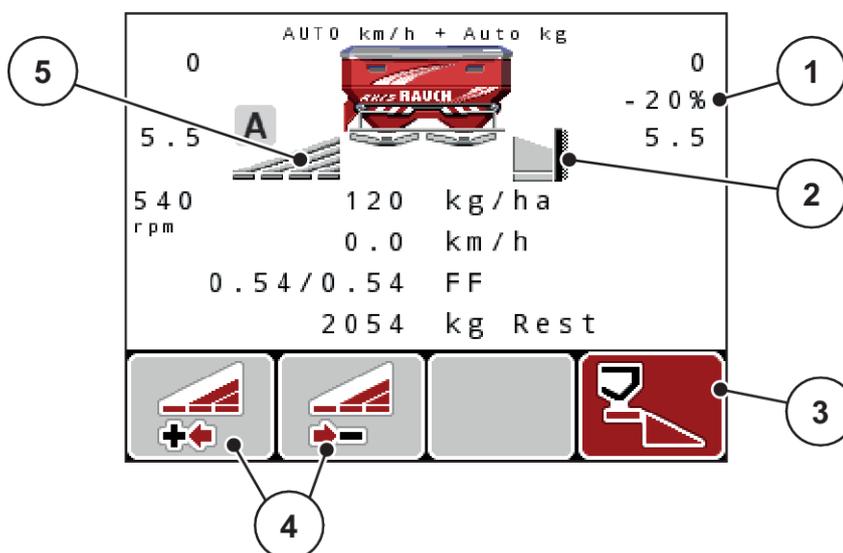


Fig. 52: Operating screen with one section on the left, boundary spreading on the right

- | | |
|---|--|
| [1] Display of application rate change in boundary spreading mode | [3] The right spreading side is activated. |
| [2] The right spreading side is in boundary spreading mode. | [4] Reduce or increase left section |
| [5] Infinitely variable adjustment of left section (VariSpread pro) | |

- The application rate on the left is set to the full spreading side.
- The **right boundary spreading** function key has been pressed, boundary spreading is active, and the application rate is reduced by 20%.
- Press the Reduce left spreading width function key in order to reduce the section.
- If you press the C/100% function key, the full spreading side will be reapplied immediately.
- Only for **TELIMAT** versions without sensor: If you press the **T** key, boundary spreading is deactivated.



The boundary spreading function is also possible in automatic mode with GPS Control. The boundary spreading side must be manually operated at all times.

- See 5.8 *GPS control*

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

Mass flow control with the function M EMC

The mass flow is measured separately on both spreader disc sides in order to be able to immediately correct any deviations from the specified application rate.

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

- PTO speed
- Disc type

A PTO speed between 360 and 390 rpm is possible.

- **The desired speed should remain constant during spreading (+/ 10 rpm).** This gives you a higher quality of control.
- Idle measurement is **only** possible if the actual PTO speed deviates by **no more than +/- 10 rpm** from the input in the PTO menu. Outside of the range, idle measurement is impossible.

Requirements for spreading:

- The AUTO km/h + AUTO kg operating mode is active. (See 4.7.2 *AUTO/MAN mode*)

- ▶ Fill the hopper with fertilizer.
- ▶ Fertilizer configuration:
 - ▷ Appl. rate (kg/ha)
 - ▷ Working width (m)
- ▶ Enter the PTO speed in the corresponding menu.
See 4.6.6 PTO speed
- ▶ Select the spreading disc type used in the appropriate menu.
See 4.6.7 Disc type
- ▶ Activate the PTO.
- ▶ Set the PTO to the entered PTO speed.

The Idle measurement screen is displayed

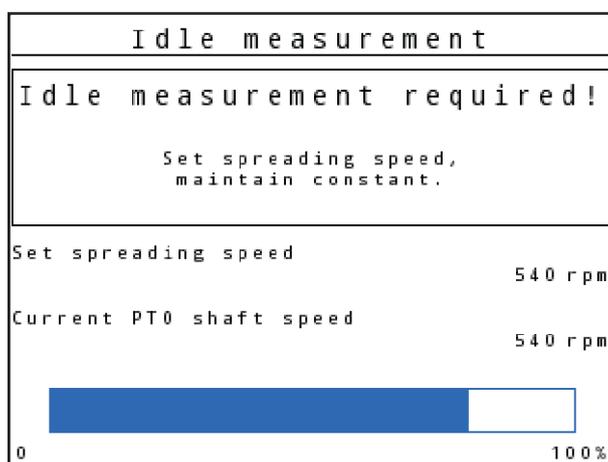


Fig. 53: Idle measurement information screen

- ▶ Wait until the progress bar has been completed.

The idle measurement has been completed.

The idling time is reset to 20 min.

- ▶ Press the Start/Stop key.

The spreading starts.



As long as the PTO is still running, a new idle measurement is started at the latest every 20 minutes once the idling time has expired.

Under certain circumstances, an idle measurement is required in order to record the new reference data before continuing the spreading work.

As soon as an idle measurement is required during spreading work, the information screen appears.



If you want to observe the time until the next idle measurement, you can also assign the freely selectable display fields in the operating screen with idle time, see 4.10.2 *Display configuration*



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

In the case of unusual changes in the flow factor, start the idle measurement manually.

Requirement:

- The spreading work has been stopped (Start/Stop key or both sections deactivated).
- The operating screen is displayed.
- The minimum PTO speed is 360 rpm.

- ▶ Press the **Enter key**.

The Idle measurement screen is displayed.

The idle measurement is started.

- ▶ Adjust PTO speed if necessary.

The bar displays the progress.

5.5 Spreading with the AUTO km/h operating mode

In AUTO km/h operating mode, the control unit automatically controls the actuator depending on the speed signal.

- ▶ Fertilizer configuration:
 - ▷ Appl. rate (kg/ha)
 - ▷ Working width (m)
- ▶ Fill the hopper with fertilizer.



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

- ▶ Carry out a calibration to determine the flow factor

or

Take the flow factor from the fertilizer chart and manually enter the flow factor.

- ▶ Press Start/Stop.

The spreading starts.



5.6 Spreading with the MAN km/h operating mode

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

- ▶ Access the menu Machine settings > AUTO/MAN mode.
- ▶ Select the MAN km/h menu item.

The Forward speed input window is displayed.

- ▶ Enter the value for the forward speed during spreading.
- ▶ Press OK.
- ▶ Fertilizer configuration:
 - ▷ Appl. rate (kg/ha)
 - ▷ Working width (m)
- ▶ Fill the hopper with fertilizer.



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

- ▶ Carry out a calibration to determine the flow factor
or
Take the flow factor from the fertilizer chart and manually enter the flow factor.



- ▶ Press Start/Stop.

The spreading starts.



Always observe the set forward speed during spreading.

5.7 Spreading in the MAN scale operating mode

The MAN scale operating mode, you can manually adjust the metering slide opening during the spreading operation.

The manual mode is only applied:

- If there is no speed signal (radar or wheel sensor not available or defective)
- when spreading slug pellets or fine seeds

The MAN scale operating mode is appropriate for slug pellets and fine seeds since the automatic mass flow control cannot be activated due to the low weight reduction.



For uniform spreading of the spreading material, a **constant forward speed** must be applied in manual operating mode.

Requirement:

- The metering slides are open (activation with the Start/Stop key).
- In the MAN scale operating screen, the icons for the spreading sides are filled in red.

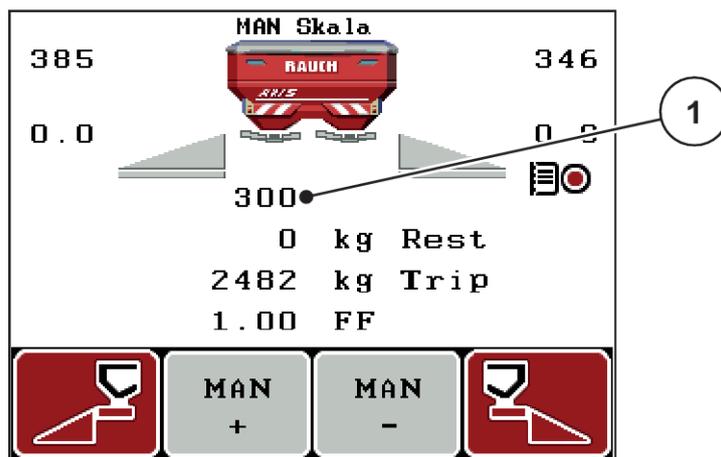


Fig. 54: MAN scale operating screen

[1] Display of metering slide scale position

- ▶ To change the metering slide opening, press the F2 or F3 function key.

F2: MAN+ to increase the metering slide opening

or

F3: MAN- to reduce the metering slide opening



In order to achieve an optimum spreading result in manual mode as well, we recommend using the metering slide opening and forward speed values provided in the fertilizer chart.

5.8 GPS control

The QUANTRON-A control unit can be combined with a GPS-compatible device. Various data is exchanged between both devices to automate control.



We recommend using our CCI 800 control unit in combination with the QUANTRON-A.

- Please contact your dealer for further information.
- Please observe the operating manual for the CCI 800 GPS Control.

The **OptiPoint** function (AXIS only) calculates the optimal switching-on and switching-off point for spreading in headlands on the basis of the settings in the machine control unit; see 4.6.9 *Calculate OptiPoint*.



To use the **GPS control** functions of the QUANTRON-A control unit, the serial communication must be activated!

- In the menu System/Test > Data transmission, activate the sub-menu item GPS-Control.



AXIS with VariSpread pro: Depending on which GPS terminal is used, the machine control can reduce the number of sections. Please contact your dealer about this.



If application maps are also used, then serial communication must be activated.

- In the menu System/Test > Data transmission, activate the sub-menu item **GPS-Control + VRA**.

The target quantity from the application map on the GPS terminal is then automatically processed in the QUANTRON-A control unit.



The **A** symbol next to the spreading wedges indicates that the automatic function is enabled. The control unit opens and closes the individual sections depending on the position in the field. The spreading starts only after when you press **Start/Stop**.

WARNING!

Risk of injury due to discharged fertilizer

The SectionControl function automatically starts the spreading operation without warning.

Ejected fertilizer can harm the eyes and nasal mucous membranes.

There is also a risk of slipping.

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

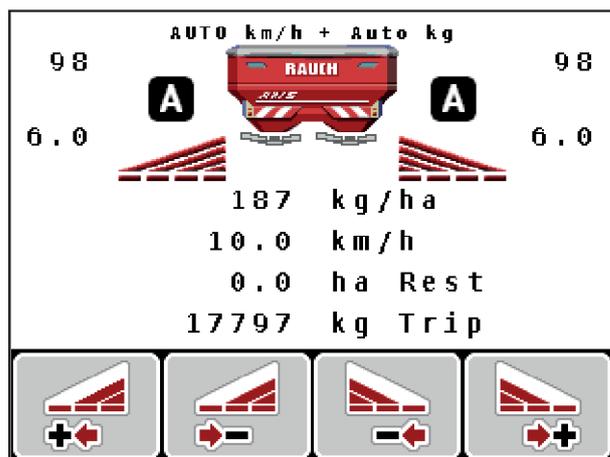


Fig. 55: Operating screen display: Spreading operation with GPS Control

Turn on distance (m)

The Turn on dist. (m) parameter refers to the switch-on distance [A] measured from the field border [C]. At this position in the field, the metering slides open. This distance depends on the type of fertilizer and represents the ideal switch-on distance for optimized fertilizer distribution.

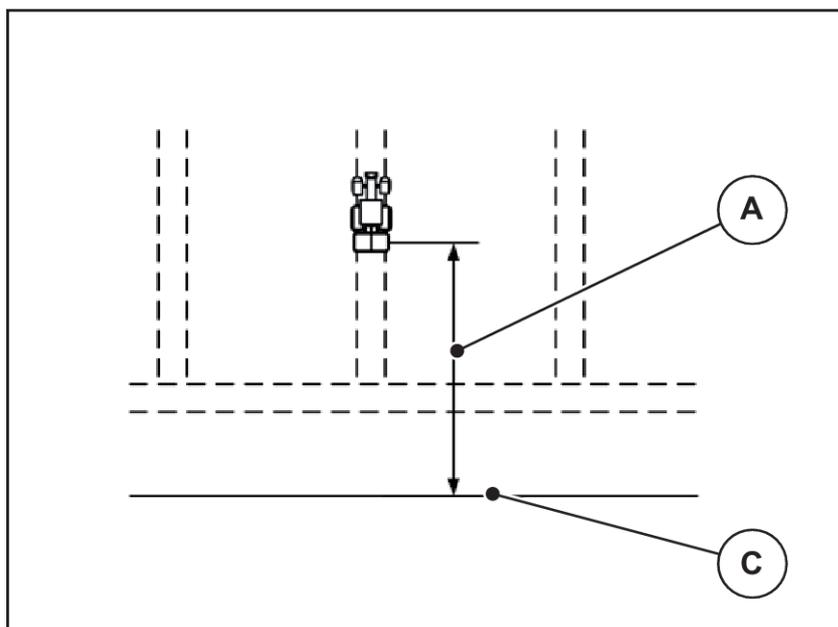


Fig. 56: Distance on (measured from field border)

A Turn on distance

C Field border

If you want to change the switch-on position in the field, you need to adjust the Turn on dist. (m) value.

- A lower value for this distance means that the switch-on position is closer to the field border.
- A greater value means that the switch-on position is closer to the center of the field.

Turn off distance (m)

The Turn off dist. (m) parameter refers to the turn off distance [B] measured from the field border [C]. At this position in the field, the metering slides start to close.

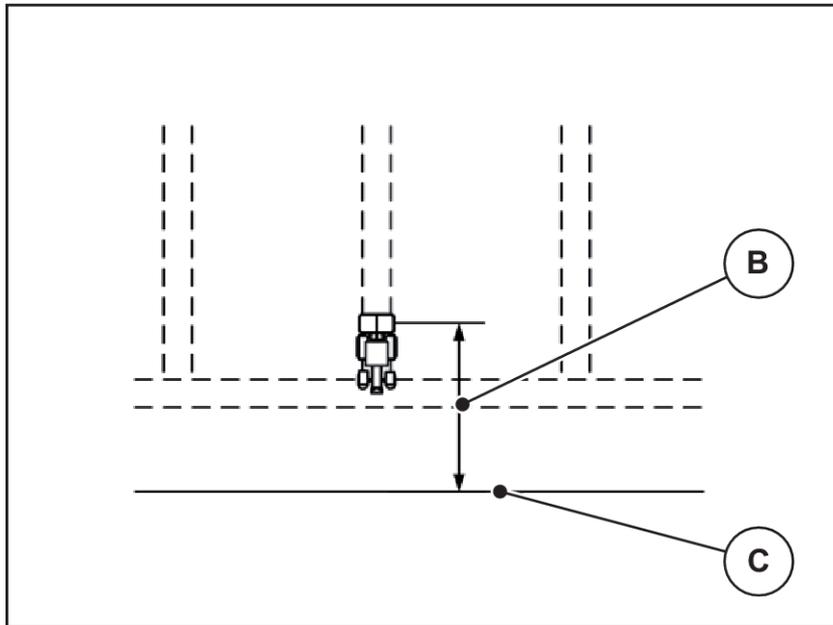


Fig. 57: Distance off (measured from field border)

B Turn off distance

C Field border

If you want to change the switch-off position, you need to adjust the Turn off dist. (m) accordingly.

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

If you want to turn through the headland track, enter a greater distance in Turn off dist. (m). Here, the adjustment must be as low as possible so that the metering slides close as soon as the tractor enters the headland track. An adjustment of the switch-off distance may lead to insufficient fertilization around the switch-off positions in the field.

6 Alarm messages and possible causes

6.1 Meaning of the alarm messages

Various alarm messages can be displayed on the QUANTRON-A control unit display.

No.	Message in display	Meaning and possible cause
1	Fault in dosing system, stop !	The motor of the metering system cannot reach the specified target value: <ul style="list-style-type: none"> • Blockage • No position feedback
2	Max. outlet reached! Speed or application rate too high	Metering slide 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 lie within a range between 0.40 and 1.90. <ul style="list-style-type: none"> • The newly calculated or entered flow factor is outside this range
4	Hopper left empty!	The filling level sensor on the left reports "empty." <ul style="list-style-type: none"> • The left hopper is empty.
5	Hopper right empty!	The filling level sensor on the right 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 application rate is too low to calculate the new flow factor when the remaining quantity is weighed. • The old flow factor is retained.

No.	Message in display	Meaning and possible cause
9	Application rate Min. setting = 10 Max. setting = 3000	Reference to the value range of the application rate • The entered value is not permitted.
10	Working width Min. setting = 12.00 Max. setting = 50.00	Reference to the value range of the working width • The entered value is not permitted.
11	Flow factor Min. setting = 0.40 Max. setting = 1.90	Reference to the value range of the flow factor • The entered value is not permitted.
12	Transmission fault. No RS232 connection	An error has occurred during data transmission to the control unit. The data has not been transmitted.
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.
15	Memory full, Delete one private fertiliser chart	A maximum of 30 fertilizer types are stored in the memory for the fertilizer charts.
16	Approach drop point Yes = Start	Safety request before the drop point is automatically approached • Drop point setting in the menu Fertiliser settings • Fast emptying
17	Error by setting drop point	The drop point adjustment cannot reach the specified target value. • Fault, for instance with the power supply • No position feedback
18	Error by setting drop point	The drop point adjustment cannot reach the specified target value. • Blockage • No position feedback • Calibration test
19	Defect by setting drop point	The drop point adjustment cannot reach the specified target value. • No position feedback

No.	Message in display	Meaning and possible cause
20	Error at LIN bus participant:	Communication problem <ul style="list-style-type: none"> Defective cable Loose plug connector
21	Spreader overloaded!	For weighing spreader only: The mineral fertilizer spreader is overloaded. <ul style="list-style-type: none"> Too much fertilizer in the hopper
23	Error by setting TELIMAT	The TELIMAT adjustment cannot reach the specified target value. <ul style="list-style-type: none"> Blockage No position feedback
24	Defect by setting TELIMAT	Defective TELIMAT actuator
25	Activate disc start. Confirm with ENTER	
32	Externally controlled parts can be moved. 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.
36	Weighing quantity impossible. Machine must stop.	Alarm message during weighing <ul style="list-style-type: none"> The Weigh quantity function can only be carried out if the machine is at a standstill and in a horizontal position.
45	Error at M-EMC sensors. EMC control deactivated!	The sensor has stopped sending signals. <ul style="list-style-type: none"> 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!	<ul style="list-style-type: none"> Hopper empty Outlet blocked
48	Right dosing error, hopper empty, outflow blocked!	<ul style="list-style-type: none"> Hopper empty Outlet blocked
49	Idle meas. implausible. EMC control deactivated!	<ul style="list-style-type: none"> Defective sensor Defective transmission

No.	Message in display	Meaning and possible cause
50	Idle meas. impossible. EMC control deactivated!	PTO speed not permanently stable
51	Hopper empty!	The kg level sensor reports "empty." The entered value is undercut.
52	Error at hopper cover	<p>The position of the hopper cover could not be reached.</p> <ul style="list-style-type: none"> • Blockage • Defective actuator
53	Defect at hopper cover	<p>The hopper cover actuator cannot reach the target value for the movement.</p> <ul style="list-style-type: none"> • Blockage • Defective actuator
54	Change TELIMAT position!	The TELIMAT position does not correspond to the state notified by GPS Control.
72	Error at SpreadLight	Power supply is too high; the operating lights will be switched off.
73	Error at SpreadLight	Overload
74	Defect at SpreadLight	<p>Connection error</p> <ul style="list-style-type: none"> • Defective cable • Loose plug connector
93	This disc type requires a modification on the TELIMAT device. Please follow the mounting instructions!	<p>Spreading disc S1 is installed and the machine is equipped with TELIMAT. Spreading errors possible during border spreading</p> <ul style="list-style-type: none"> • This spreading disc type requires conversion of the TELIMAT device.
94	Error at border spreading equip	Alarm for the GSE sensor. This error message is displayed if the GSE status is not detected for more than 5 seconds.

6.2 Fault/alarm

Alarm messages are highlighted on the display and displayed with a warning symbol.

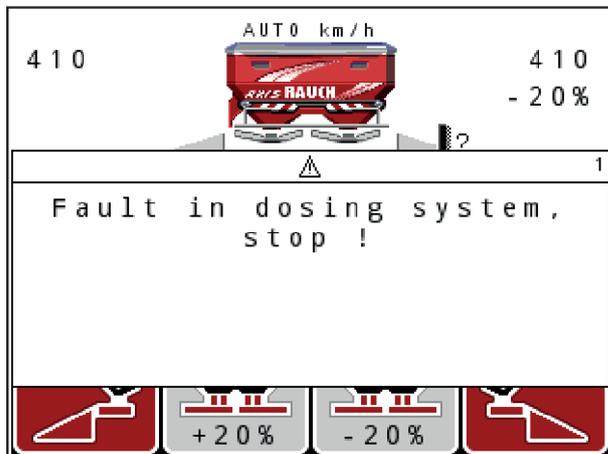


Fig. 58: Example of an alarm message

Acknowledging an alarm message:

- ▶ Rectify the cause of the alarm message.
Please observe the operator's manual of the machine and section 6.1 *Meaning of the alarm messages*.
- ▶ Press the **C/100%** key.



7 Special equipment

Illustration	Designation
	Level sensor
	Forward speed sensor
	Y cable RS232 for data exchange (e.g., GPS, N sensor, etc.)
	System tractor cable set, 12 m

Illustration	Designation
 A black cable is coiled around a white rectangular receiver unit. The unit has the text 'AccoSAT' and a left-pointing arrow, along with the website 'www.mso-technik.de'.	GSP cable and receiver
 A black cable with a blue connector at one end and a black connector at the other. A small white label is attached to the cable.	TELIMAT sensor
 A metal bracket with a flat base and a vertical rod. The base has two circular holes and a central slot. The rod is attached to the base with a nut and washer.	Universal bracket
 A grey rectangular module with a black cable attached to one end. The module has the text 'W10' and a Wi-Fi symbol on its surface.	WiFi module

8 Guarantee and warranty

RAUCH devices are manufactured using modern production methods and with the greatest of professional care, and are subjected to numerous inspections.

This is why RAUCH is offering a 12 month warranty if the following conditions are met:

- The warranty starts on the date of purchase.
- The warranty covers material or manufacturing defects. We are liable for third-party products (hydraulics, electronics) only to the extent of the relevant manufacturer. During the warranty period, manufacturing and material defects will be rectified free of charge with the replacement or repair of the affected parts. Other rights extending beyond the above, such as claims for conversion, reduction, or replacement for reasons of damage not suffered by the supplied product are explicitly excluded. Warranty services are provided by authorized workshops, by RAUCH factory representatives or the factory itself.
- Consequences of natural wear, dirt, corrosion, and all defects caused by improper use as well as external influences shall be excluded from the warranty. Any unauthorized repairs or changes to the original condition will void the warranty. The warranty is voided if any spare parts other than genuine RAUCH spare parts were used. Therefore, the directions in the operating manual must be observed. Please contact our company representatives of the parent company if you have any questions or doubts. Warranty claims must be submitted to the company within 30 days at the latest after the damage has occurred. The date of purchase and the machine number must be indicated. If repairs under the warranty are required, they must be carried out by the authorized workshop only after consultation with RAUCH or the company's appointed representatives. The warranty period will not be extended by warranty work. Transport damage is not a factory defect and is therefore not covered by the manufacturer's warranty manufacturer.
- Claims for damage other than to the RAUCH devices will not be accepted. This also means that no liability will be accepted for damage resulting from spreading errors. Unauthorized modifications of the RAUCH devices may result in consequential damage, for which the manufacturer will not accept any liability. The manufacturer's exclusion from liability will not apply in the case of willful 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. The exclusion from liability will also not apply if characteristics are missing that are explicitly guaranteed, if the purpose of their guarantee was to protect the purchaser against damage not suffered by 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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