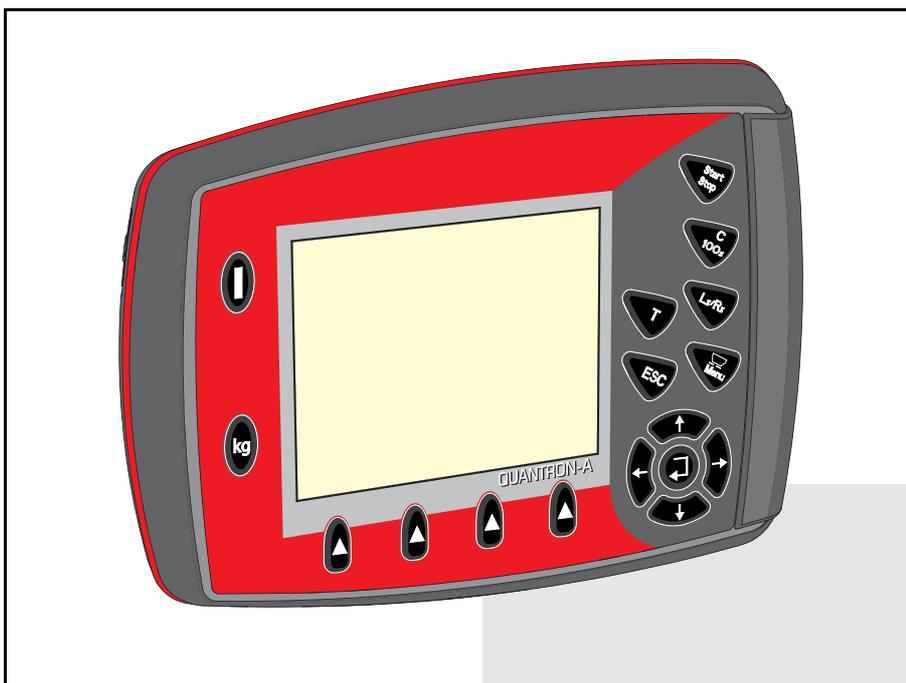




RAUCH

wir nehmen's genau

INSTRUCTION MANUAL



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

Keep for future reference.

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

**UKS
LINUS**

QUANTRON-A

Original instructions

5901348-C-en-0617

Preface

Dear customer,

By purchasing the QUANTRON-A control unit for the universal box spreader UKS and LINUS, you have shown confidence in our product. Thank you very much! We would like to justify this confidence. You have purchased a reliable, high-performance control unit. Should you, against all expectations, encounter any problems: our customer service is always there for you.



Please read this operator's manual as well as the operator's manual of the universal box spreader carefully before commissioning, and follow the advice given.

This manual may also describe equipment and options that are not included in your control unit.

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

CAUTION

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

The control unit QUANTRON-A is factory-calibrated for the fertiliser spreader with which it has been delivered. It cannot be connected to another fertiliser spreader without requiring additional calibration.

Please state this information when ordering spare parts or accessories, and in case of complaints.

Serial number of control unit

Serial number of the universal box
spreader

Year of manufacture

Technical improvements

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

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

Yours sincerely

RAUCH

Landmaschinenfabrik GmbH

Preface

Technical improvements

1	User instructions	1
1.1	About this operator's manual	1
1.2	Information on the illustration.	1
1.2.1	Significance of warnings	1
1.2.2	Instructions and procedures.	2
1.2.3	Listings.	3
1.2.4	References.	3
1.2.5	Menu hierarchy, keys and navigation.	3
2	Layout and function	5
2.1	Overview of supported universal box spreaders	5
2.2	Configuration of the control unit.	5
2.3	Layout of the control unit - overview	6
2.4	Control elements	7
2.5	Display	9
2.5.1	Operating screen of the winter spreader UKS	9
2.5.2	Operating screen of the UKS GB and LINUS fertiliser spreaders	11
2.6	Structural menu overview	13
2.6.1	Winter spreader UKS series.	13
2.6.2	UKS GB and LINUS series fertiliser spreaders	14
3	Attachment and installation	15
3.1	Requirements for the tractor	15
3.2	Connections, sockets.	15
3.2.1	Power supply	15
3.2.2	7-pin plug connector.	16
3.3	Connecting the control unit	17

4	Operation QUANTRON-A	21
4.1	Switching on the control unit	21
4.2	Menu navigation	23
4.3	Weighing trip counter	24
4.3.1	Trip counter	25
4.3.2	Residual material	26
4.4	Main menu	28
4.5	Spreading material settings	29
4.5.1	Spreading material settings for winter spreaders menu UKS	29
4.5.2	Fertiliser settings for fertiliser spreaders menu	31
4.5.3	Spreading density/application rate	32
4.5.4	Flow factor	33
4.5.5	RPM	34
4.5.6	Calibration test	34
4.5.7	Spreading density +/- (winter spreader only UKS)	36
4.5.8	+/- application rate (for large fertiliser spreaders UKS GB or LINUS)	37
4.5.9	Fertiliser chart	38
4.6	Machine configurat.	40
4.6.1	Forward speed calibration	41
4.6.2	AUTO/MAN mode	44
4.6.3	Special spreading (+%; winter spreader UKS only)	46
4.6.4	Working width	47
4.6.5	Metering openings	47
4.6.6	Simulated speed	48
4.7	Fast emptying	50
4.8	File/field data	51
4.8.1	Selecting a file	52
4.8.2	Starting the recording	53
4.8.3	Stopping the recording	54
4.8.4	Importing and exporting files	55
4.9	System/test	56
4.9.1	Setting the language	57
4.9.2	Display configuration	58
4.9.3	Test/diagnosis	59
4.9.4	Data transmission	61
4.9.5	Service	61
4.10	Info	61
4.11	Special functions	62
4.11.1	Text input	62
4.11.2	Entering values with the cursor keys	64

5	Spreading operation with the QUANTRON-A control unit	65
5.1	Calling up the residual material during spreading	65
5.2	Spreading in the AUTO km/h operating mode	66
5.3	Spreading in the MAN km/h operating mode	67
5.4	Spreading in the MAN scale operating mode	68
6	Alarm messages and possible causes	69
6.1	Meaning of the alarm messages	69
6.2	Clearing an error/alarm	71
6.2.1	Acknowledging an alarm message	71
7	Special equipment	73
	Index	A
	Terms/conditions of warranty	

1 User instructions

1.1 About this operator's manual

This operator's manual is an **integral part** of the control unit **QUANTRON-A**.

The operator's 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 maintenance costs and downtime and to increase the machine's reliability and service life.

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

The operator's manual does not replace your **own responsibility** as the operator and operating personnel of the QUANTRON-A control unit.

1.2 Information on the illustration

1.2.1 Significance of warnings

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

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

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

Warning severity level

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

▲ DANGER



Type and source of danger

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

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

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

▲ WARNING



Type and source of danger

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

Ignoring these warnings will result in very serious injury.

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

▲ CAUTION



Type and source of danger

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

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

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

NOTICE

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

1.2.2 Instructions and procedures

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

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

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

A bullet is placed in front of these instructions:

- Handling instruction

1.2.3 Listings

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

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

1.2.4 References

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

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

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

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

1.2.5 Menu hierarchy, keys and navigation

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

In the menus, **submenus and/or menu items** are listed where you can make settings (selection lists, text or number entries, starting functions).

The different menus and keys of the control unit are illustrated in **bold** letters:

- Access the highlighted submenu by pressing the **Enter key**.

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

- **System / Test > Test/Diagnosis > Voltage** means that you can access the menu item **Voltage** 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 universal box spreaders

Function/options	Type	Type
Electronic application rate control	<ul style="list-style-type: none"> • UKS 100-Q • UKS 120-Q • UKS 150-Q • UKS 190-Q • UKS 230-Q • UKS 300-Q 	<ul style="list-style-type: none"> • LINUS 17.1
Automatic metering shaft speed control		<ul style="list-style-type: none"> • LINUS 17.1

2.2 Configuration of the control unit

The control unit is factory-set to the properties of the universal box spreader with which it is delivered. The unit's configuration for the application rate and the operating screen depends on the area of application of the spreader.

	UKS 100-Q	UKS 120-Q	UKS 150-Q	UKS 190-Q	UKS 230-Q	UKS 300-Q	LINUS 17.1
Area of application	Winter service		Fertiliser spreader				Fertiliser spreader
Unit of the application rate	g/m ²		kg/ha				kg/ha
Colour (hopper)	orange		red				red

NOTICE

The configuration of the machine is only accessible to service personnel.

If the operating screen and the settings of the machines used do not conform, please contact your dealer or customer service.

2.3 Layout of the control unit - overview

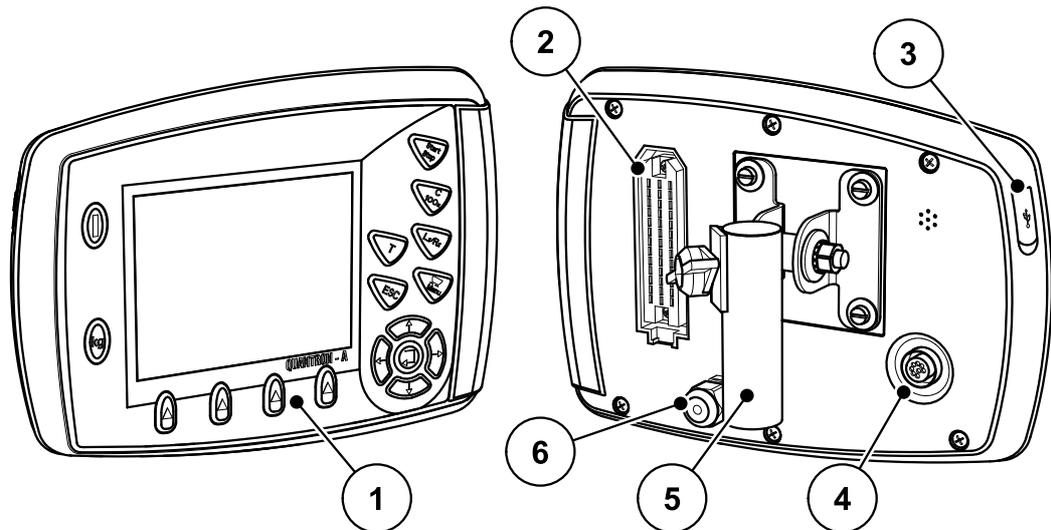


Figure 2.1: Control unit QUANTRON-A

No.	Designation	Function
1	Control panel	Consisting of foil buttons used to operate the device and the display for operating screens.
2	Machine cable plug connector	39-pin plug connector for connecting the machine cable to sensors and actuators.
3	USB port with cover	For exchanging data and updating the PC. Cover serves as a protection against contamination.
4	V24 data port	Serial interface (RS232) with LH 5000 and TUVR protocol, designed for Y-RS232 cables for connection to a remote terminal. Plug connector (DIN 9684-1/ISO 11786) for 7-pin to 8-pin cable connection for the speed sensor.
5	Mounting bracket	Attaches the control unit to the tractor.
6	Power supply	3-pin plug connector conforming to DIN 9680 / ISO 12369 for connecting the power supply.

2.4 Control elements

The operation of your universal box spreader is implemented via **17 foil buttons** (13 fixed and 4 freely configurable foil buttons).

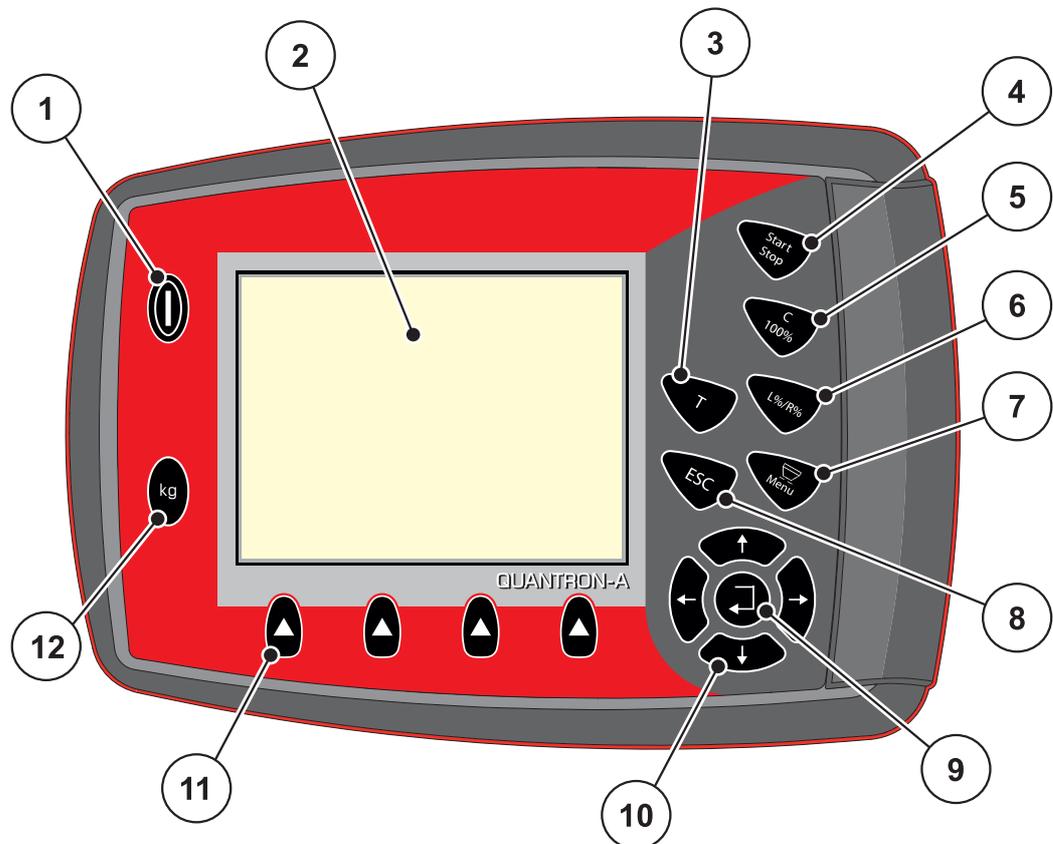


Figure 2.2: Operating panel at the front of the unit

NOTICE

The operator's manual describes the functions of the control unit QUANTRON-A as of software version 2.01.00

No.	Designation	Function
1	ON/OFF	Switches the device on/off
2	Display	Display of operating screens
3	T key	<ul style="list-style-type: none"> For spreading with simulated speed (starting at crossing or in the headlands). Only in g/m² configuration: for spreading with pre-set special spreading rate (percentage value of the additional quantity during normal spreading operation).
4	Start/Stop	Start/stop spreading.

No.	Designation	Function
5	Clear/Reset	<ul style="list-style-type: none"> • Clearing an entry in an input field; • Acknowledging alarm messages. • Only in kg/ha configuration: Reset the excess or shortage quantity to 100%,
6	L%/R%	No function
7	Menu	Switch between operating screen and main menu.
8	ESC	Cancelling entries and/or returning to the previous menu at the same time.
9	Navigation field	Enter key <ul style="list-style-type: none"> • Confirming an entry
10		4 arrow keys for navigating through the menus and input fields. <ul style="list-style-type: none"> • Moving the cursor in the display • Selecting a menu or input field
11	Function keys F1 to F4	Selection of the functions displayed above the function keys.
12	Weighing/trip counter	<ul style="list-style-type: none"> • Display of the residual spreading material in the hopper. • Trip counter • kg rest • Meter counter

2.5 Display

The display shows the current status information and the selection and input options for the control unit.

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

NOTICE

The exact representation of the operating screen depends on the actual settings selected as well as of the factory configuration. See chapter [2.2: Configuration of the control unit, page 5](#) and [4.9.2: Display configuration, page 58](#).

2.5.1 Operating screen of the winter spreader UKS

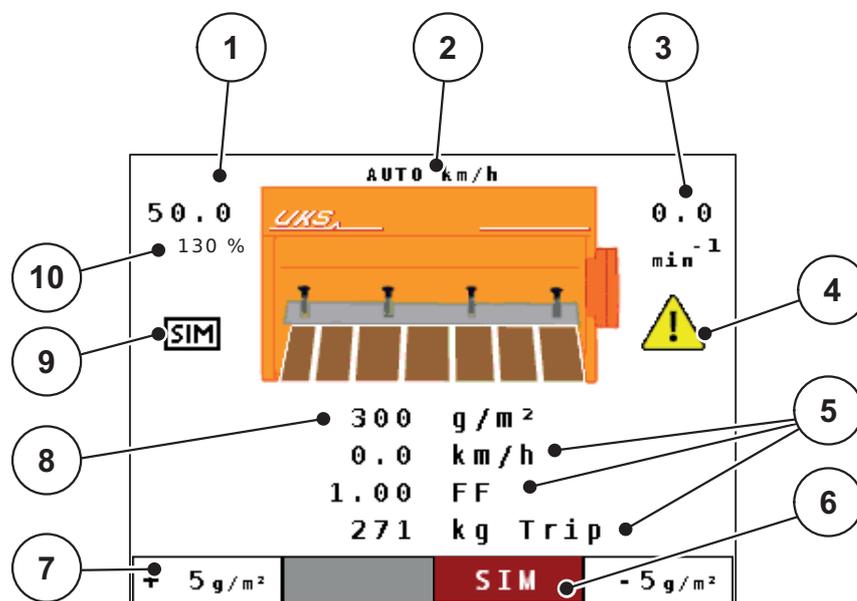


Figure 2.3: Operating screen of the control unit (winter spreader UKS)

The icons and displays in the example have the following meaning:

No.	Icon/display	Meaning (in the example shown)
1	Metering slide scale opening	Current opening position of the metering slide
2	Operating mode	Shows the current operating mode (MAN scale, MAN km/h, AUTO km/h)
3	RPM	Agitator shaft speed in rpm
4	Speed (rpm) warning icon	The warning icon indicates that the actual rpm deviates from the selected rpm.
5	Display fields	Configurable display fields (here: forward speed, flow factor and kg trip). <ul style="list-style-type: none"> Possible configuration: see chapter 4.9.2: Display configuration, page 58.

No.	Icon/display	Meaning (in the example shown)
6	SIM	Selection of the activation type for the simulated speed <ul style="list-style-type: none"> ● Grey: Manual ● Red: Automatic activation ● Selection of the function by means of the function keys below.
7	Icon fields	Icon assignment to the fields depending on the menu <ul style="list-style-type: none"> ● Spreading density +/- <ul style="list-style-type: none"> - Step width for reducing and/or increasing the pre-set spreading density - 4 step widths are possible, see chapter 4.5.7: Spreading density +/- (winter spreader only UKS), page 36 ● MAN +/- <ul style="list-style-type: none"> - See 5.4: Spreading in the MAN scale operating mode, page 68 ● Selection of the function by means of the function keys below.
8	Spreading density	Preset application rate.
9	Simulated speed	The symbol indicates that the simulated speed is active.
10	Additional quantity, special spreading	While pressing the Special spreading key (see Figure 2.2), the additional percentage quantity indicated here is spread.

2.5.2 Operating screen of the UKS GB and LINUS fertiliser spreaders

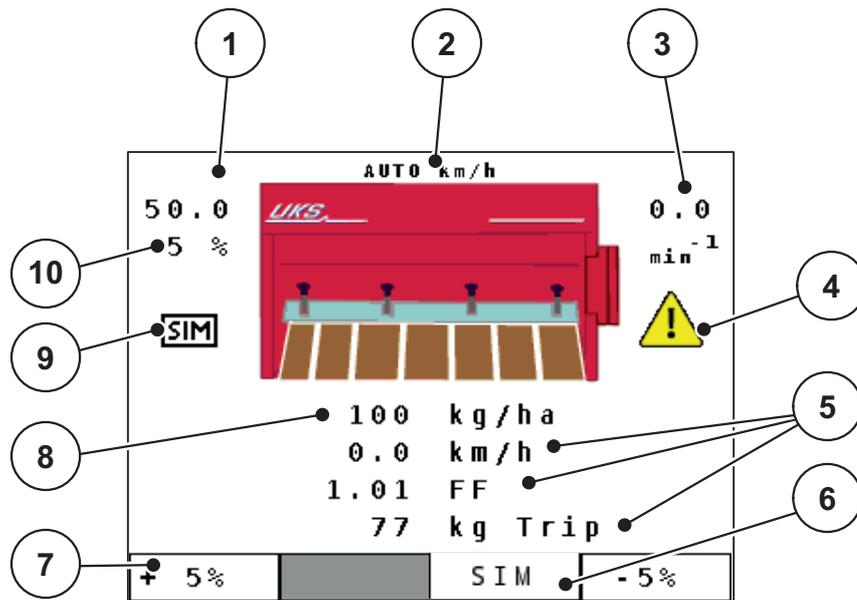


Figure 2.4: Operating screen of the control unit (example: UKS operating screen)

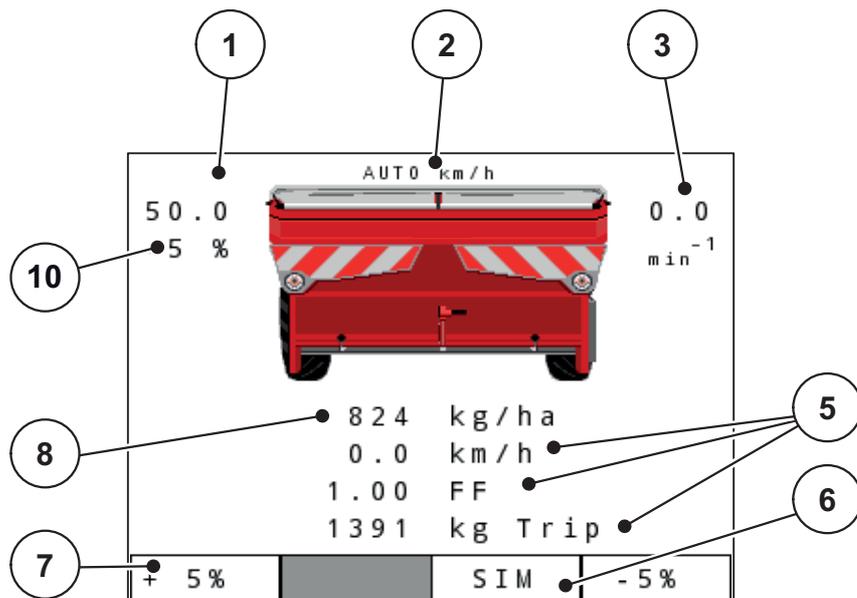


Figure 2.5: Operating screen of the control unit (example: LINUS operating screen)

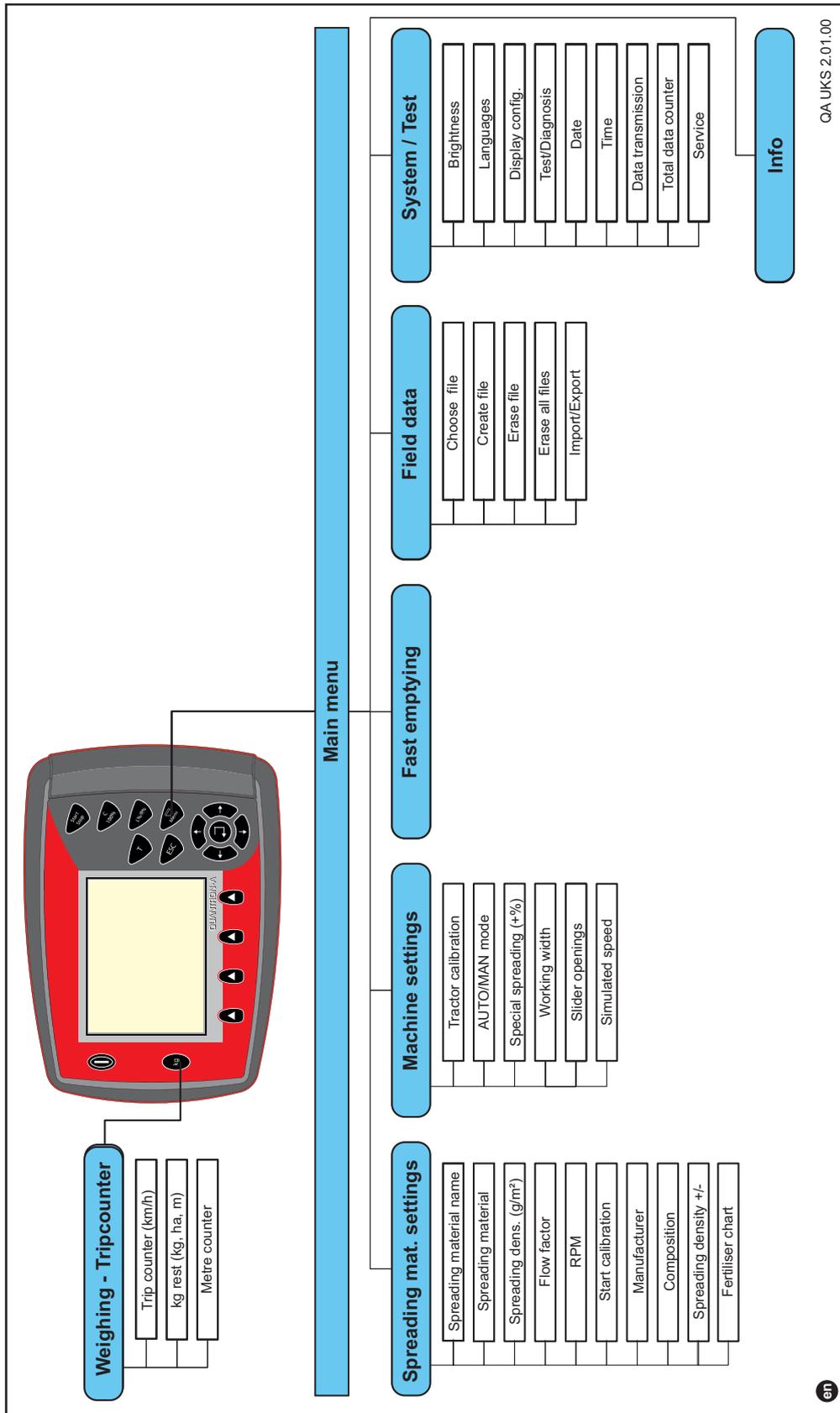
The icons and displays in the example have the following meaning:

No.	Icon/display	Meaning (in the example shown)
1	Metering slide scale opening	Current opening position of the metering slide
2	Operating mode	Displays the current operating mode (MAN scale, MAN km/h, AUTO km/h)
3	RPM	Agitator shaft speed in rpm

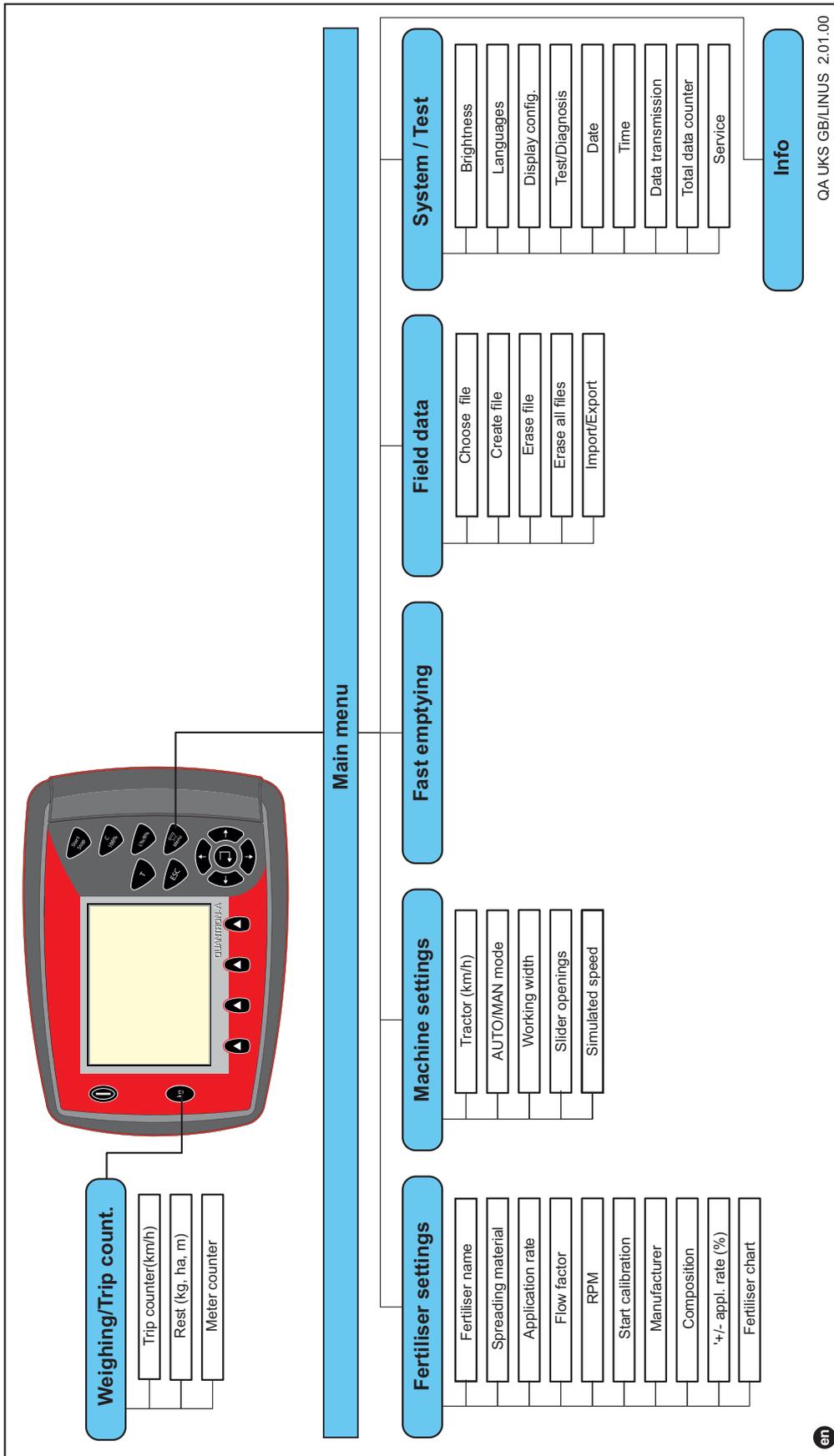
No.	Icon/display	Meaning (in the example shown)
4	Speed (rpm) warning icon	The warning icon indicates that the actual rpm deviates from the selected rpm.
5	Display fields	Configurable display fields (here: forward speed, flow factor and kg trip). <ul style="list-style-type: none"> ● Possible configuration: see chapter 4.9.2: Display configuration, page 58.
6	SIM	Selection of the activation type for the simulated speed. <ul style="list-style-type: none"> ● Grey: Manual ● Red: Automatic activation ● Selection of the function by means of the function keys below. ● 4.6.6: Simulated speed, page 48
7	+/- additional quantity	Percentage value (+/-) for application rate adjustment of the pre-set application rate <ul style="list-style-type: none"> ● Selection of the function by means of the function keys below.
8	Application rate	Preset application rate.
9	Simulated speed	The symbol indicates that the simulated speed is active.
10	Application rate adjustment	Application rate adjustment (+/-) in percent <ul style="list-style-type: none"> ● Display of application rate adjustment ● Value ranges of +/- 1 to 99% possible

2.6 Structural menu overview

2.6.1 Winter spreader UKS series



2.6.2 UKS GB and LINUS series fertiliser spreaders



3 Attachment and installation

3.1 Requirements for the tractor

Before installing the control unit, check to make sure your tractor meets the following requirements:

- A minimum voltage of **11 V** is essential **at all times**, even if multiple loads are connected simultaneously (e. g. air conditioning system, lights).
- The PTO speed can be set to **540 rpm** and must be maintained (basic requirement for correct working width).

NOTICE

On tractors without load-switchable gears, 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). The control unit receives the pulse for the current forward speed through this socket.

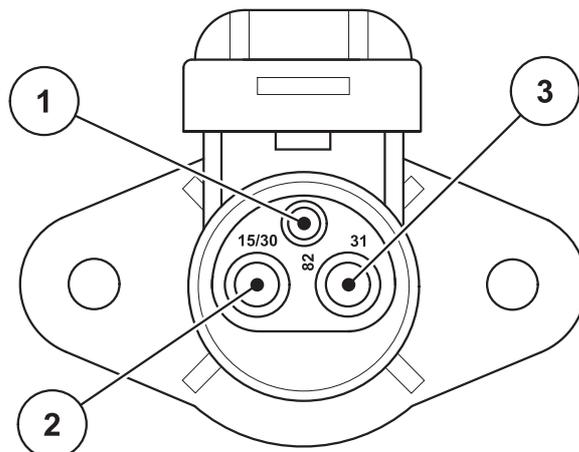
NOTICE

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

3.2 Connections, sockets

3.2.1 Power supply

The control unit is supplied with power from the tractor via the 3-pin power supply socket (DIN 9680/ISO 12369).

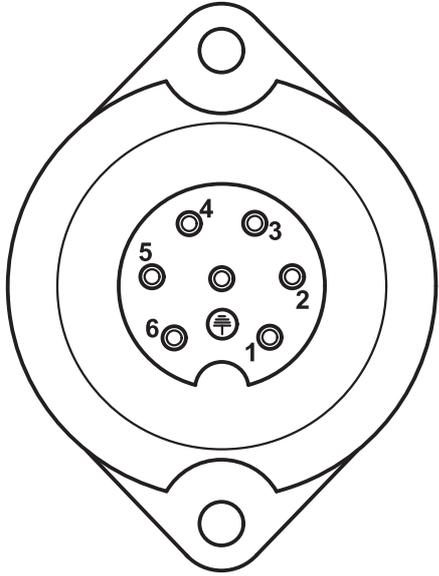


- [1] PIN 1: not required
- [2] PIN 2: (15/30): +12 V
- [3] PIN 3: (31): mass

Figure 3.1: PIN assignment of power socket

3.2.2 7-pin plug connector

The control unit receives the pulses for the current forward speed via the 7-pin plug connector 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.



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

Figure 3.2: PIN assignment for 7-pin plug connector

3.3 Connecting the control unit

NOTICE

After having switched on the QUANTRON-A control unit, the display shows the machine name for a short time.

NOTICE

Observe the machine type

The QUANTRON-A control unit has been calibrated at the factory for the universal box spreader with which it was supplied.

- Check the machine type in the **Info** menu. Refer to [4.10: Info, page 61](#).
- Connect the control unit to the correct universal box spreader only.

Depending on the equipment, there are different methods of attaching the control unit to the machine. Schematic connection diagrams can be obtained from the following figures:

- Standard connection: [page 18](#),
- Connection with wheel sensor: [page 19](#),
- Connection with wheel sensor and machine cable: [page 20](#).

Proceed in the following order.

- Select a suitable position in the tractor cabin (within **the driver's field of vision**) to fix the control unit.
- Fix the control unit using 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, see [figure 3.3](#) to [figure 3.5](#)).
- Connect the control unit to the sensors and the actuator of the universal box spreader using the 39-pin machine cable.
- Connect the control unit to the tractor's power supply using the 3-pin plug connector.

Standard schematic connection diagram:

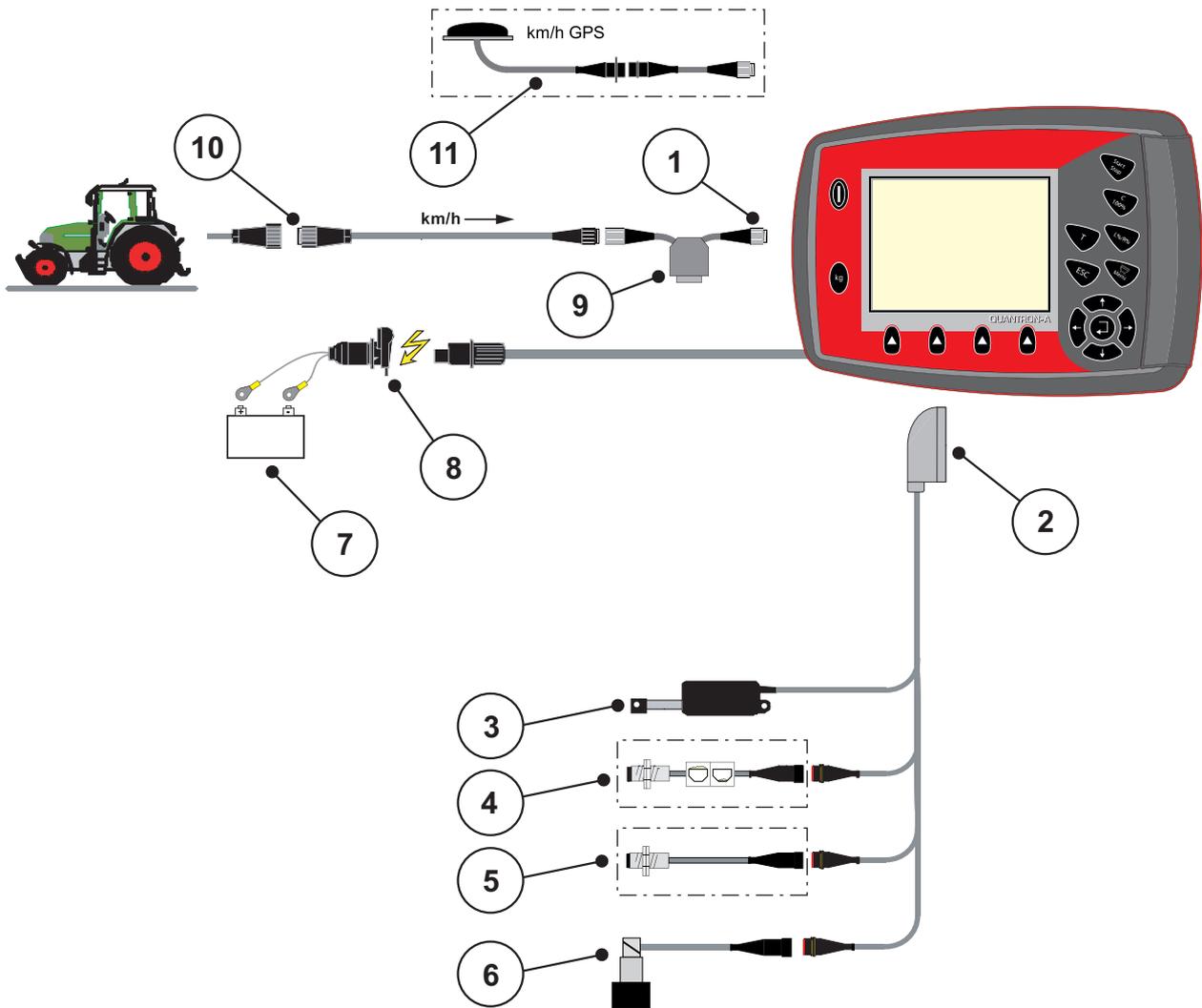


Figure 3.3: Schematic connection diagram QUANTRON-A (standard)

- [1] Serial interface RS232, 8-pin plug connector
- [2] 39-pin machine plug
- [3] Metering slide actuator
- [4] Level sensor (option)
- [5] Agitator shaft speed sensor
- [6] LINUS: Proportional valve, agitator shaft speed
- [7] Battery
- [8] 3-pin plug connector conforming to DIN 9680 / ISO 12369
- [9] Option: Y-cable (V24 RS232 interface for storage medium)
- [10] 7-pin plug connector conforming to DIN9684
- [11] Option: GPS cable and receiver

Schematic connection diagram for wheel sensor:

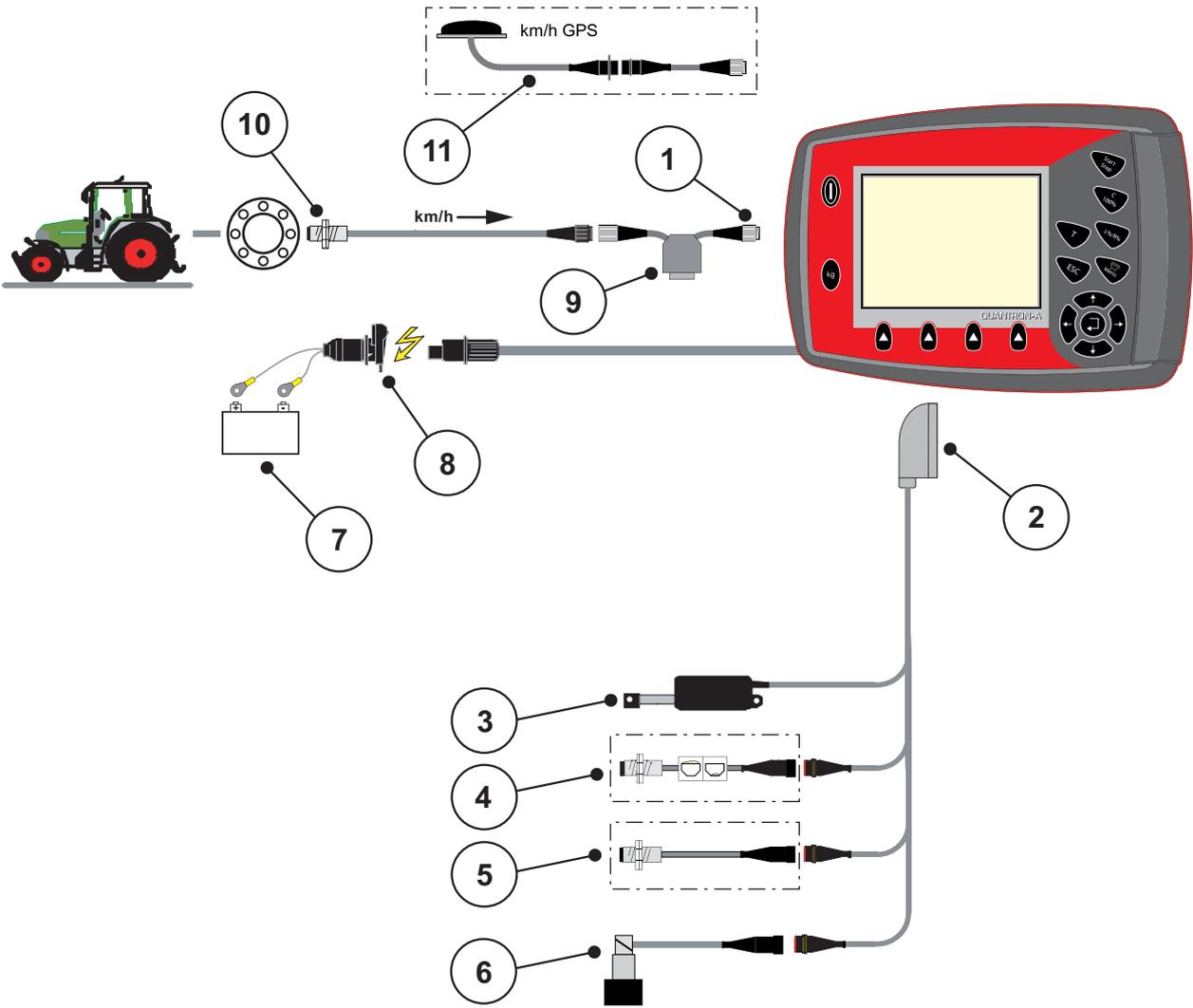


Figure 3.4: Schematic connection diagram QUANTRON-A (standard)

- [1] Serial interface RS232, 8-pin plug connector
- [2] 39-pin machine plug
- [3] Metering slide actuator
- [4] Level sensor (option)
- [5] Agitator shaft speed sensor
- [6] LINUS: Proportional valve, agitator shaft speed
- [7] Battery
- [8] 3-pin plug connector conforming to DIN 9680 / ISO 12369
- [9] Option: Y-cable (V24 RS232 interface for storage medium)
- [10] Forward speed sensor
- [11] Option: GPS cable and receiver

Standard schematic connection diagram for machine cable:

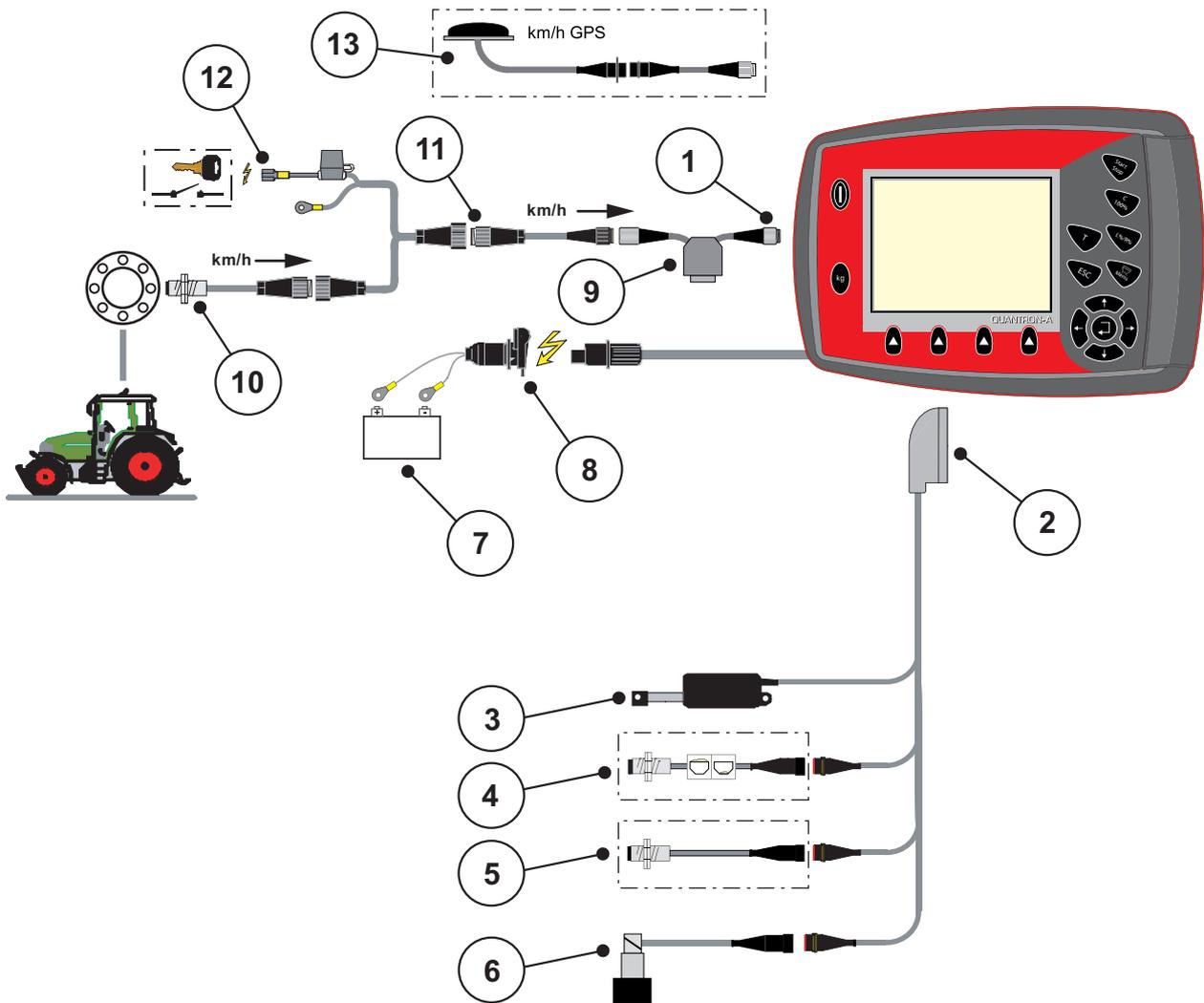


Figure 3.5: Schematic connection diagram QUANTRON-A (standard)

- [1] Serial interface RS232, 8-pin plug connector
- [2] 39-pin machine plug
- [3] Metering slide actuator
- [4] Level sensor (option)
- [5] Agitator shaft speed sensor
- [6] LINUS: Proportional valve, agitator shaft speed
- [7] Battery
- [8] 3-pin plug connector conforming to DIN 9680 / ISO 12369
- [9] Option: Y-cable (V24 RS232 interface for storage medium)
- [10] 7-pin plug connector conforming to DIN9684
- [11] Forward speed sensor
- [12] Option: Power supply QUANTRON-A via ignition lock
- [13] Option: GPS cable and receiver

4 Operation QUANTRON-A



Risk of injury due to ejected spreading material

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 danger of slipping and injury of persons due to ejected spreading material.

- ▶ **Before leaving for the place of spreading** the electronic control unit QUANTRON-A must always be switched off.

4.1 Switching on the control unit

Requirements:

- The control unit is correctly connected to the machine and the tractor (for example, see chapter [3.3: Connecting the control unit, page 17](#)).
- A minimum voltage of **11 V** is guaranteed.

NOTICE

The operator's manual describes the functions of the control unit QUANTRON-A as of software version **2.01.00**



1. Press the **ON/OFF switch**.
 - ▷ After a few seconds, the **start-up screen** of the control unit appears.
 - ▷ Shortly after, the control unit will display the **activation menu** for a few seconds.
2. Press the **Enter key**.
 - ▷ The **start diagnosis** will be displayed for a few seconds.
 - ▷ Afterwards, the **operating screen** is displayed.



Figure 4.1: Start QUANTRON-A

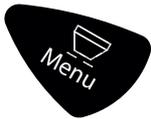
[1] ON/OFF switch

4.2 Menu navigation

NOTICE

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

Accessing the main menu

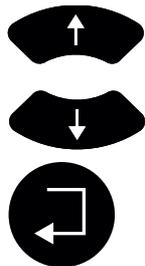


- Press the **Menu key**. Refer to [2.4: Control elements, page 7](#).
 - ▷ The main menu is displayed.
 - ▷ The black bar indicates the first sub-menu.

NOTICE

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:



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

Windows appear prompting various actions.

- Text input; see [4.11.1: Text input, page 62](#)
- Value input; see [4.11.2: Entering values with the cursor keys, page 64](#)
- Settings made in further sub-menus

Exiting the menu

- Confirm settings by pressing the **Enter key**.
 - ▷ The **previous menu** is displayed.
 or
- press the ESC key.
 - ▷ The previous settings are retained.
 - ▷ The **previous menu** is displayed.
- Press the **Menu key**.
 - ▷ The **operating screen** is displayed again.
 - ▷ Press the **Menu key** once more to return to the menu that you left.



4.3 Weighing trip counter

This menu provides values on the spreading work carried out.

- Press the **kg** key at the control unit.
 - ▷ The **weighing trip counter** menu is displayed.

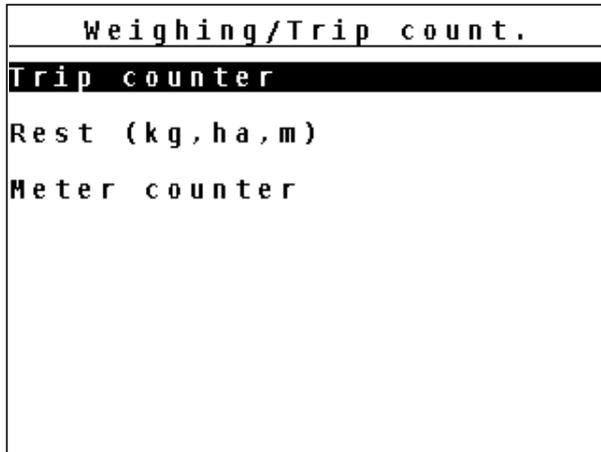


Figure 4.2: Weighing/Trip counter menu

Sub-menu	Meaning	Description
Trip counter	Display of the applied spreading quantity, area spread and spread distance.	Page 25
Rest (kg, ha, m)	Display of the residual spread quantity, area and distance.	Page 26
Meter counter	Display of the distance travelled since the last reset of the meter counter.	Reset (zeroing) by pressing the C 100% key

4.3.1 Trip counter

This menu provides the following values:

- spread quantity (kg)
- spread area (ha)
- spread distance (m)

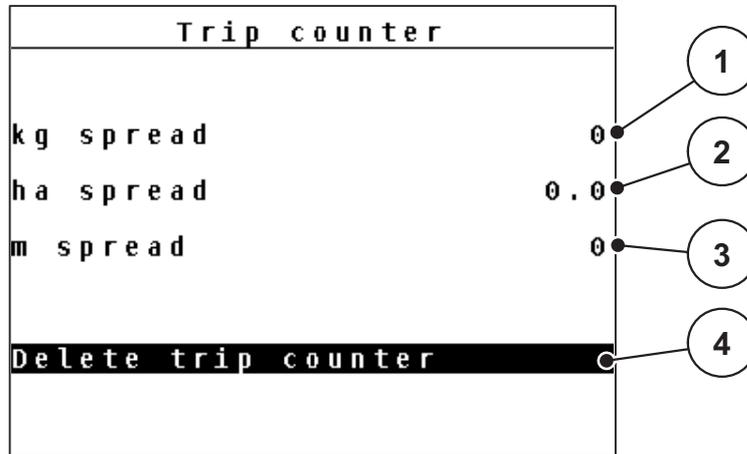


Figure 4.3: Trip counter menu

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

Delete trip counter:

1. Open the **Weighing/Trip counter > Trip-counter** sub-menu.
 - ▷ The calculated values for spread quantity, area and distance **since the last deletion** are displayed.
 - ▷ The **Delete trip counter** field is highlighted.
2. Press the **Enter key**.
 - ▷ All values of the trip counter are reset to 0.
3. Press the **kg key**.
 - ▷ The operating screen is displayed again.

Checking the trip counter during spreading:

During the spreading work, i.e. with the metering slide being open, change into the **Trip counter** menu and obtain the current values there.

NOTICE

If the values are to be permanently monitored during spreading, freely assignable display fields in the operating screen may also be assigned the **kg Trip**, **ha Trip** or **m Trip** values, refer to chapter [4.9.2: Display configuration, page 58](#).

4.3.2 Residual material

In the **Rest (kg, ha, m)** menu, you can query or input the **residual material** in the hopper.

The menu indicates the possible **area (ha)** and **distance (m)** which can still be spread with the residual material. Both displays are calculated based on the following values:

- Fertiliser settings/spreading material settings
 - Application rate/spreading density
 - Working width
 - Weight (entered)

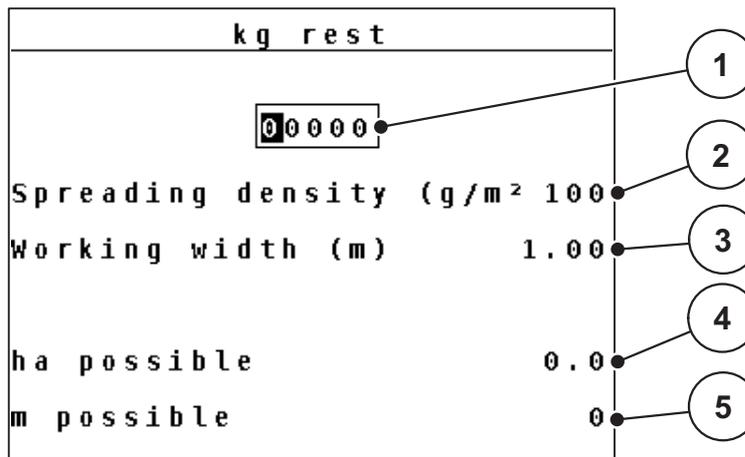


Figure 4.4: Rest (kg, ha, m) menu, example winter spreader UKS

- [1] Residual material input field
- [2] Application rate in kg/ha and/or spreading density in g/m² (display field from fertiliser settings, depending on type)
- [3] Working width (display field from fertiliser settings)
- [4] Display of possible area that can be spread with the residual material
- [5] Display of possible distance that can be spread with the residual material

Entering the residual material when refilling:

1. Open the **Weighing trip counter > Rest (kg, ha, m)** menu.
 - ▷ The residual material from the last spreading process is displayed.
2. Fill the hopper.
3. Enter the new total weight of the spreading material in the hopper.
 - ▷ The device calculates the values for the possible spread area and the possible spread distance.

NOTICE

The values for application rate/spreading density and working width cannot be changed in this menu. They are for information purposes only.

4. Press the **kg** key.
 - ▷ **The operating screen is displayed again.**

Calling up the residual material during spreading:

During spreading, the residual material is continuously recalculated and displayed. During spreading, i.e. with the metering slide being open, the kg rest menu can be opened to display the residual material currently present in the hopper.

NOTICE

If the values are to be permanently monitored during spreading, freely assignable display fields in the operating screen can also be assigned with the **kg rest**, **ha rest** or **m rest** values, refer to chapter [4.9.2: Display configuration, page 58](#).

4.4 Main menu

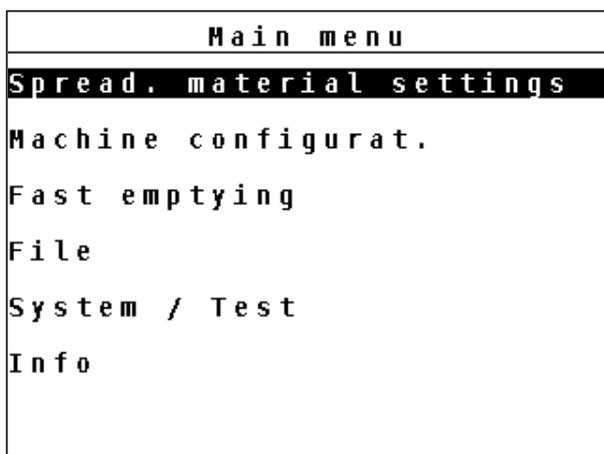


Figure 4.5: Main menu QUANTRON-A (Winter spreaders UKS)

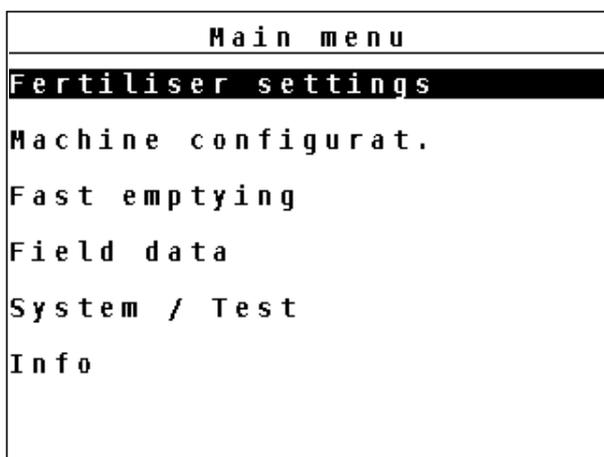


Figure 4.6: Main menu QUANTRON-A (Fertiliser spreaders)

Sub-menu	Meaning	Description
Spread. material settings Fertiliser settings	Settings of the spreading operation.	Page 29 Page 31
Machine configurat.	Settings for tractor and machine.	Page 40
Fast emptying	Direct access to the menu for fast emptying of the universal box spreader.	Page 50
File Field data	Opens the menu for selecting, creating or deleting a file.	Page 51
System/Test	Settings and diagnosis of the control unit.	Page 56
Info	Machine configuration display	Page 61

4.5 Spreading material settings

You can adjust the settings for spreading material and spreading operation in this menu.

4.5.1 Spreading material settings for winter spreaders menu UKS

- Open the **Main menu > Spread. mat. settings** menu.

Spread. mat. settings ^{1/2}	Spread. mat. settings ^{2/2}
7.<Spr. mat.>	-----
Spread. mat. Fine salt	Spreading density +/- 5
Spreading dens. (g/m ²) 25	
Flow factor 2.00	
RPM 15	Fertiliser chart
Start calibration	

Figure 4.7: Spreading material settings menu, page 1 and 2

Sub-menu	Meaning/possible values	Description
Spreading material name	Manual entry of the name of a new spreading material.	Page 38
Spreading material	Selection of a spreading material or fertiliser type for determining the mass current curve: <ul style="list-style-type: none"> ● Fertiliser ● Salt, fine ● Salt, coarse ● Salt, damp ● Sand ● Grit 	
Spreading density	Entering of the spreading density based on the pre-selected characteristic curve.	Page 32
Flow factor	Entry of the flow factor for the spreading material used.	Page 33
RPM	Selection of the agitator shaft speed	Page 34
Start of calibration test	Implementation of the calibration test and new calculation of the flow factor.	Page 34
Manufacturer	Entry of the spreading material manufacturer.	
Composition	Percentage of the chemical composition.	

Sub-menu	Meaning/possible values	Description
Spreading density +/-	Specification of the step width by which the spreading density can be manually increased or decreased later.	Page 36
Fertiliser chart	Management of fertiliser charts.	Page 38

NOTICE

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

4.5.2 Fertiliser settings for fertiliser spreaders menu

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

Fertiliser settings ^{1/2}		Fertiliser settings ^{2/2}	
3.<Spr. mat.>		-----	
Spread. mat.	Fertiliser	+/- appl. rate (%)	5
Appl. rate (kg/ha)	300		
Flow factor	1.00		
RPM	15		
Start calibration		Fertiliser chart	

Figure 4.8: Fertiliser settings menu, page 1 and 2

NOTICE

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

Sub-menu	Meaning/possible values	Description
Fertiliser name	Manual entry of a name for a new type of fertiliser.	Page 38
Spreading material	Selection of one of six spreading material or fertiliser types for determining the mass flow characteristic: <ul style="list-style-type: none"> ● Fertiliser ● Salt, fine ● Salt, coarse ● Salt, damp ● Sand ● Grit 	
Application rate	Input of target value for the application rate in kg/ha.	Page 32
Flow factor	Entry of the flow factor for the spreading material used.	Page 33
RPM	Selection of the agitator shaft speed	Page 34
Start of calibration test	Implementation of the calibration test and new calculation of the flow factor.	Page 34
Manufacturer	Entry of the fertiliser manufacturer.	
Composition	Percentage of the chemical composition.	

Sub-menu	Meaning/possible values	Description
+/- quantity	Pre-setting the quantity reduction for the different spreading types.	Page 37
Fertiliser chart	Management of fertiliser charts.	Page 38

4.5.3 Spreading density/application rate

In the **Spreading density** (UKS winter services) or **Application rate** (UKS GB and LINUS) the required spreading density/application rate with which the spreading material is to be applied can be entered.

Entry of spreading density/application rate:

1. Open **Spread. mat. settings > Spreading density** or **Fertiliser settings > Application rate**.
 - ▷ The **currently applicable** spreading density or application rate is displayed.
2. Enter a new value in the input field using the **arrow keys**:

Spreading material (property)	Spreading density (g/m ²)	Application rate (kg/ha)
Salt, coarse/fine (damp)	5-40	50-400
Sand, grit (blunting)	75-300	750-3000
Fertiliser	1-300	1-3000

3. Press the **Enter key**.
 - ▷ The new value is saved in the control unit.
 - ▷ The **Spread. mat. settings** menu is displayed.

NOTICE

The programmed ranges are **only reference values**. The spreading density can be adapted to individual requirements.

If a value outside the range is entered, an alarm message is displayed.

- Press the **C/100%** key: the entered value is saved.

4.5.4 Flow factor

The range of the flow factor depends on the set agitator shaft speed.

- between **0.4** to **2.5** with an agitator shaft speed of 15 rpm
- between **0.4** to **3.5** with an agitator shaft speed of 28 rpm

For identical basic settings (km/h/, working width, kg/ha or g/m²) the following applies:

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

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

NOTICE

Via the Calibration test menu, the flow factor can be determined and entered by means of the QUANTRON-A. Refer to [4.5.6: Calibration test, page 34](#).

NOTICE

The flow factor calculation depends on the operating mode used. For further information about the flow factor, refer to chapter [4.6.2: AUTO/MAN mode, page 44](#).

Entering the flow factor:

1. Open the **Fertiliser/Spread. mat. settings > Flow factor** menu.
 - ▷ The **currently applied** flow factor is displayed.
2. Enter the new value in the input field.

NOTICE

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

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

3. Press the **Enter key**.
 - ▷ **The new value is saved in the control unit.**

4.5.5 RPM

In this menu, the agitator shaft speed is entered. If an universal box spreader LINUS is used, the control unit controls the agitator shaft speed via the proportional valve.

NOTICE

UKS only: The agitator shaft speed is set at the flow control valve. The rpm value entered in the QUANTRON-A **does not affect** the actual agitator shaft speed. This entry is for information only.

In the **RPM** menu, you can select the agitator shaft speed.

Selecting the speed:

1. Open the **Fertiliser/Spread. mat. settings > RPM** menu.
2. Select one of the two values using the **arrow keys**.
 - 15 rpm
 - 28 rpm
3. Press the **Enter key**.
 - ▷ The new value is saved.
 - ▷ The display changes to the **Spread. material settings** menu.

4.5.6 Calibration test

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

Carry out the calibration test:

- Before spreading for the first time.
- If the spreading material quality has changed significantly (moisture, high dust content, cracked grain).
- If a new type of spreading material is used.
- If the agitator shaft speed was changed.

The calibration test must be conducted with engaged agitator shaft at a standstill or while driving on a test track.

Entering the working speed:

1. Open the **Fertiliser/Spread. mat. settings > Start calibration test** menu.
2. Enter the average working speed.

This value is required for calculating the slider position during the calibration.
3. Press the **Enter key**.
 - ▷ The new value is saved in the control unit.
 - ▷ The **Prepare calibration test** operating screen is displayed.

Running the calibration test:**▲ WARNING****Risk of injury during calibration**

Rotating machine components and ejected spreading material may cause injury.

- ▶ **Before starting** the calibration test, ensure that all requirements have been met.
 - ▶ Please observe the **Calibration test** chapter in the operator's manual of the spreader.
-

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

- ▷ The metering slide opens.
- ▷ The calibration starts.
- ▷ The **Running the calibration test** operating screen is displayed.

NOTICE

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

NOTICE

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

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

- ▷ The calibration test is stopped.
- ▷ The metering slide closes.
- ▷ The **Input collected weight** menu is displayed.

Recalculating the flow factor

6. Determine the collected weight
7. Enter the collected weight.
8. Press the **Enter key**.
 - ▷ The new value is saved in the control unit.
 - ▷ The **Flow factor calculation** window is displayed.

NOTICE

The range of the flow factor depends on the agitator shaft speed and must comply with the following values.

- between **0.4** to **2.5** with an agitator shaft speed of 15 rpm
- between **0.4** to **3.5** with an agitator shaft speed of 28 rpm

9. Define the flow factor.
 - To apply the **new** flow factor, press the **Enter key**.
 - To confirm the **previously saved** flow factor, press the **ESC key**.
- ▷ **The flow factor is saved.**
 - ▷ **The Fertiliser/Spread. mat. settings menu is displayed.**

4.5.7 Spreading density +/- (winter spreader only UKS)

In the **Spreading density +/-** menu, the **step width** increase and decrease of the **spreading density** can be set by pressing the **F1** and **F4** function keys in the operating screen.

Determining the step width of the spreading density:

1. Open the **Spread. mat. settings > spreading density +/-** menu.
2. Select one of the required step widths.
 - 5 g/m²
 - 10 g/m²
 - 25 g/m²
 - 50 g/m²
3. Press the **Enter key**.
 - ▷ The step width is automatically applied to the control unit.

4.5.8 +/- application rate (for large fertiliser spreaders UKS GB or LINUS)

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

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

NOTICE

During operation, the application rate can be changed by the +/- application rate factor using the F1/F4 keys at any time.

With the **C/100 %** key, the previous settings are restored.

Defining the application rate reduction:

1. Open the **Fertiliser settings > +/- appl. rate (%)** menu.
2. Enter the percentage value by which the application rate is to be adjusted.
3. Press the **Enter key**.
 - ▷ The **Spread. mat. settings** menu is displayed.

4.5.9 Fertiliser chart

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

NOTICE

The selection of a fertiliser chart affects the spreading material settings at the control unit and the machine. The application rate setting remains unaffected.

Creating a new fertiliser chart

The control unit can store up to **30** fertiliser charts.

1. Open the **Fertiliser/Spread. mat. settings > fertiliser chart** menu.

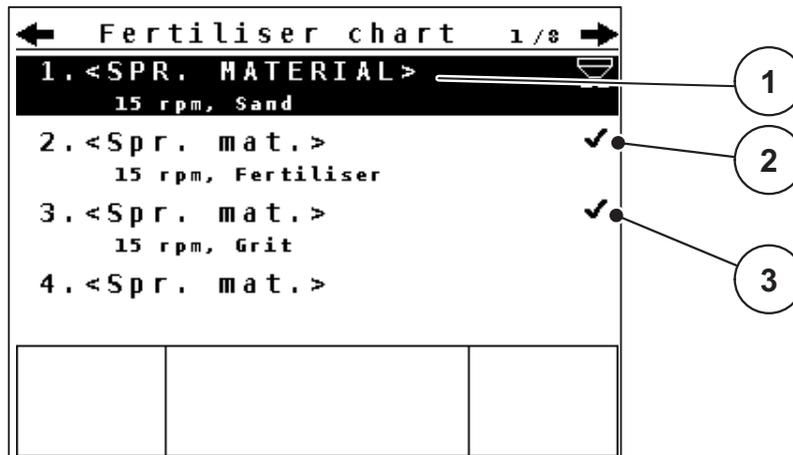


Figure 4.9: Fertiliser chart menu

- [1] Fertiliser chart name field
- [2] Display of active fertiliser chart
- [3] Display of the fertiliser chart filled with values

2. Select a name field of an empty chart.
3. Press the **Enter key**.
 - ▷ The selection window is displayed.
4. Select the **Open and return...** option.
5. Press the **Enter key**.
 - ▷ The **Fertiliser/Spread. mat. settings** menu is displayed and the selected element is loaded as **active fertiliser chart**.
6. Select the **Fertiliser name** in the menu.
7. Press the **Enter key**.
8. Enter a name for the fertiliser chart.

NOTICE

We recommend naming the fertiliser chart with the spreading material name to improve the allocation of the fertiliser chart to a spreading material.

9. Edit the parameters of the **fertiliser chart**.
Refer to [4.5: Spreading material settings, page 29](#).

Selecting a fertiliser chart:

1. Open the **Fertiliser/spread. mat. settings > fertiliser chart** menu.
2. Select the required fertiliser chart.
The name field consists of the name of the spreading material, the working width, and the speed.
3. Press the **Enter key**.
 - ▷ The selection window is displayed.
4. Select the **Open and return...** option.
5. Press the **Enter key**.
 - ▷ The **Fertiliser/Spread. mat. settings** menu is displayed and the selected element is loaded as **active fertiliser chart**.

Copying an existing fertiliser chart

1. Select the required fertiliser chart.
2. Press the **Enter key**.
 - ▷ The selection window is displayed.
3. Select the **Copy element** function.
4. Press the **Enter key**.
 - ▷ **The fertiliser chart is copied to the first free position in the list.**

Deleting an existing fertiliser chart

1. Select the required fertiliser chart.
2. Press the **Enter key**.
 - ▷ The selection window is displayed.
3. Select the **Delete element** function.
4. Press the **Enter key**.
 - ▷ **The fertiliser chart was deleted.**

4.6 Machine configurat.

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

- Open the **Machine settings** menu.

Machine configurat.	
Tractor (km/h)	
AUTO / MAN mode	
Special spreading (+%)	60
Working width (m)	1.00
Slider openings	0
Simulated speed	10.0

Figure 4.10: Machine configurat. menu

Sub-menu	Meaning	Description
Tractor (km/h)	Determining or calibrating the speed signal	Page 41
AUTO/MAN mode	Setting the automatic or manual operating mode.	Page 44
Special spreading (+%)	Presetting for special spreading (Winter spreader UKS only)	Page 46
Working width	Input of working width	Page 47
Slider openings	Number of closed metering sliders;	Page 47
Simulated speed	Pre-settings for spreading with simulated speed when starting at crossings or in the headlands	Page 48

4.6.1 Forward speed calibration

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

Preparing the forward speed calibration:

The exact calculation of the number of speed pulses over 100 m is very important for the precise discharge of the fertiliser quantity.

- Conduct the calibration in 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 four-wheel drive.
- Fill only half of the machine, if possible.

Access the forward speed calibration:

In the QUANTRON-A control unit, you can save up to **4 different profiles** for the type and number of pulses. You can assign names to these profiles (e.g. tractor name).

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

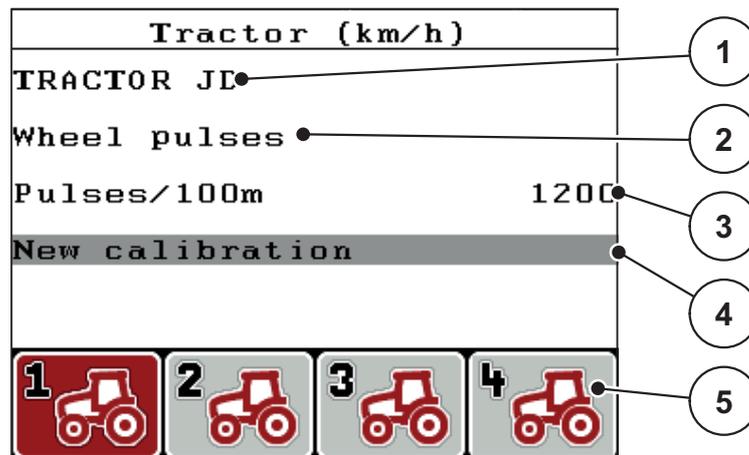


Figure 4.11: Tractor (km/h) menu

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

1. Open the **Machine configurat. > Tractor (km/h)** menu.

The displayed values for name, origin and number of pulses refer to the profile highlighted in black.

2. Press the function key (**F1-F4**) under the memory location symbol.

New calibration of the forward speed signal:

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

1. Select the desired memory location in the **Tractor (km/h)** menu using the function key below.
 2. Select the **New calibration** field.
 3. Press the **Enter** key.
- ▷ The **Tractor (km/h)** calibration menu is displayed.

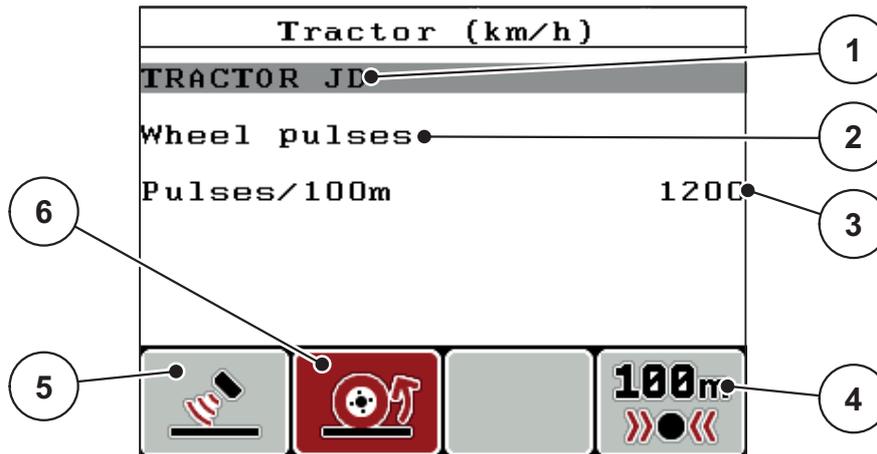


Figure 4.12: Tractor (km/h) calibration menu

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

4. Highlight the **Tractor name** field.
5. Press the **Enter** key.
6. Enter the name of the profile.

NOTICE

The name entered is restricted to **16 characters**.

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

7. 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 pulse transducer is displayed.**

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

8. Open **Tractor (km/h) > New calibration > Imp/100m** in the menu.
 - ▷ **The pulses menu for manual pulse count input is displayed.**

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

9. Press the **F4 (100 m AUTO)** function key.
 - ▷ The calibration run operating screen is displayed.

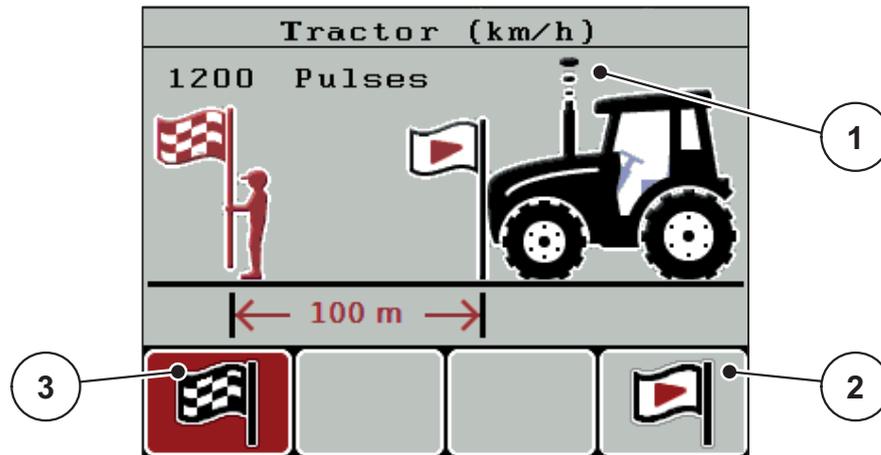


Figure 4.13: Calibration run speed signal operating screen

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

10. Press the **F4** function key [2] at the starting point of the reference distance.
 - ▷ The pulse display is now on zero.
 - ▷ The control unit is ready for counting pulses.
11. Drive a reference distance of 100 m.
12. Stop tractor at the end of the reference distance.
13. Press the **F1** function key [3].
 - ▷ The display shows the number of received pulses.
14. Press the **Enter** key.
 - ▷ **The new pulse count is saved.**
 - ▷ **The calibration menu is displayed again.**

4.6.2 AUTO/MAN mode

By default, the **AUTO km/h** operating mode is selected. The control unit automatically controls the actuator based on the speed signal.

The **manual** mode is only applied in the following cases:

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

NOTICE

For uniform spreading of the spreading material, a **constant forward speed** has to be ensured in manual operating mode.

NOTICE

For spreading with different operating modes, refer to chapter [5: Spreading operation with the QUANTRON-A control unit, page 65](#).

Menu	Meaning	Description
AUTO km/h	Selecting the automatic mode	Page 45
MAN km/h	Forward speed adjustment for manual mode	Page 45
MAN scale	Metering slide adjustment for manual mode	Page 46

Selecting the operating mode

1. Switch on the control unit QUANTRON-A.
 2. Open the **Machine configurat. > AUTO/MAN mode** menu.
 3. Select the required menu item.
 4. Press the **Enter key**.
- For important information on the use of the operating modes for spreading operation refer to chapter [5.2: Spreading in the AUTO km/h operating mode, page 66](#).

AUTO km/h: Automatic operation**NOTICE**

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

1. Switch on the control unit QUANTRON-A.
 2. Open the **Machine configurat. > AUTO/MAN mode** menu.
 3. Select **AUTO km/h** in the menu.
 4. Press the **Enter key**.
 5. Configure the fertiliser settings:
 - Application rate (kg/ha)
 - Working width (m)
 6. Fill the hopper with spreading material.
 7. Carry out calibration test to determine the flow factor
or
determine the flow factor using the provided fertiliser chart.
 8. Enter the flow factor manually.
 9. Press the **Start/Stop** key.
- ▷ **The spreading starts.**

NOTICE

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

MAN km/h: manual operation

1. Switch on the control unit QUANTRON-A.
2. Open the **Machine configurat. > AUTO/MAN mode** menu.
3. Select **MAN km/h** in the menu.
 - ▷ The **Forward speed** input window is displayed.
4. Enter the forward speed during spreading.
5. Press the **Enter key**.

NOTICE

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

MAN scale: manual operation with scale value

1. Open the **Machine configurat. > AUTO/MAN mode** menu.
2. Select **MAN scale** in the menu.
 - ▷ The display shows the **metering slide opening** menu.
3. Enter the scale value for the metering slide opening.
4. Press the **Enter key**.
 - ▷ **The operating mode setting is saved.**

NOTICE

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

4.6.3 Special spreading (+%; winter spreader UKS only)

In the **Special spreading (+%)** menu, an **Application rate adjustment** percentage can be specified for normal spreading.

The basis is the pre-set value of the spreading density. 100% special spreading density correspond to a doubling of the spreading density set.

NOTICE

During operation, the spreading rate can be adjusted at any time by pressing the **T** key (special spreading).

- See [2.4: Control elements, page 7](#)

The application rate can only be increases, and **not** decreases.

Adjusting the application rate:

1. Open the **Machine configurat. > special spreading (+%)** menu.
2. Enter the percentage value by which you wish to increase the application rate.
3. Press the **Enter key**.

Special spreading:

1. From the **Machine configurat.** menu, change to the **operating screen**.
2. To activate spreading of the pre-set additional quantity during the spreading operation press and hold the **T key** (see [2.4: Control elements, page 7](#)).

NOTICE

The additional quantity is only spread while the **T key** is held.

4.6.4 Working width

The working width is factory set to the machine type with which the control unit is delivered. For mounting special equipment a smaller or greater working width may be required.

The pre-set working width (in metres) can be adjusted in this menu.

Entering the working width:

1. Open the **Machine configurat. > Working width** menu.
 - ▷ The working width set **on the basis of the programmed machine** is displayed.
2. Enter the new value.
3. Press the **Enter key**.
 - ▷ **The new value is saved in the control unit.**

NOTICE

Depending on the mounted special equipment and the application, the decrease of the working width is achieved in combination with closed metering slide openings.

- Enter the new working width and the number of closed metering slide openings in the **machine configurat.** menu.

4.6.5 Metering openings

In this menu, the number of closed metering openings is entered.

1. Open the **Machine configurat. > Slider openings** menu.
2. Enter the number of closed metering openings.
 - 0 is pre-set: All slide openings are open.
 - A maximum of 10 slide openings can be closed.
 - ▷ The control unit adjusts the opening position of the metering slide. This ensures that the spreading density in g/m² is maintained.
3. Press the **Enter key**.
 - ▷ **The new value is saved in the control unit.**

4.6.6 Simulated speed

In the simulated speed menu, a simulated speed can be specified for normal spreading.

The simulated speed should be activated when starting at crossings, traffic lights or in the headlands. With the simulated speed function, the metering slide opens immediately and the spreading starts with the first meter.

NOTICE

The simulated speed function can only be activated when the tractor is at a standstill.

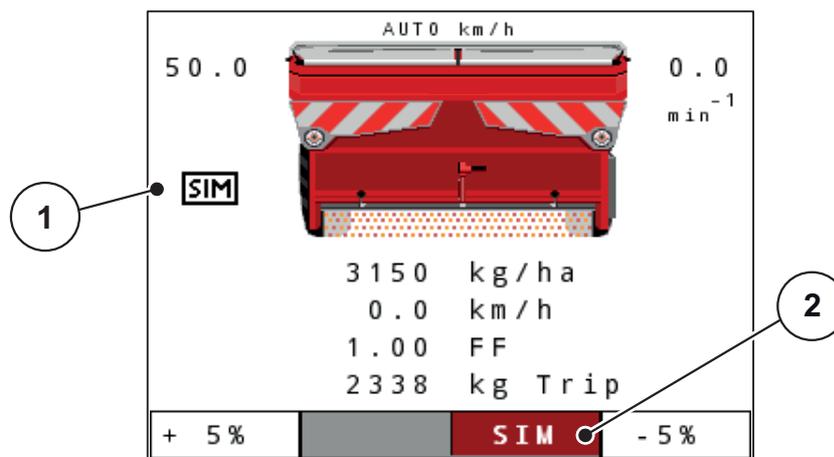


Figure 4.14: Simulated speed

- [1] Symbol for simulated speed
- [2] The simulated speed is activated.

Defining the simulated speed:

NOTICE

The factory setting for the simulated speed is 0.0 km/h!

1. Open the **Machine configurat. > Simulated speed** menu.
2. Enter the speed to be simulated.
3. Press the **Enter key**.

Spreading with simulated speed:**Requirements**

- The operating screen is displayed.

SIM

a) Automatic simulation is not activated; display field is highlighted in grey.

1. Press the **Start/Stop** key.
 - ▷ The spreading operation is activated.
2. Press the **T** key with the machine at a standstill (see [figure 2.2](#)).
 - ▷ The simulated speed is activated.
 - ▷ The metering slide opens.

b) Activating the automatic simulation.

SIM

1. Press the **F3** function key.
 - ▷ The display field is highlighted in red.
2. Press the **T** key with the machine at a standstill (see).
 - ▷ The spreading operation is activated.
 - ▷ The simulated speed switches on automatically.
 - ▷ The metering slide opens.

If the spreading operation is interrupted, the simulated speed is deactivated.

3. When restarting the spreading operation, press the **T** key.
 - ▷ The automatic, simulated speed is active again.

NOTICE

The simulated speed remains active until it is exceeded by the actual speed. After having exceeded the simulated speed, the metering quantity is calculated based on the actual speed.

NOTICE

The simulated speed can be deactivated by pressing the **T** key again.

4.7 Fast emptying

In order to quickly clean the machine after the spreading work or to quickly empty any residual material, the **Fast emptying** menu can be selected.

Before storing the machine, we recommend to **completely open** the metering slide via the fast emptying function and to switch off the QUANTRON-A in this state. This prevents accumulation of humidity in the hopper.

NOTICE

Before starting the fast emptying process, ensure that all requirements have been met. Please refer to the operator's manual of the machine (emptying of residual material).

1. Open the **Main menu > Fast emptying** menu.
2. Press the **Start/Stop** key.
 - ▷ The fast emptying process starts.
3. Press the **Start/Stop key** again.
 - ▷ The fast emptying process is stopped.

4.8 File/field data

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

NOTICE

For reasons of understanding the term **File** is used for both, field data (fertiliser spreaders UKS GB and LINUS) and for file (winter spreader UKS).

- Open the **Main menu > File** menu.

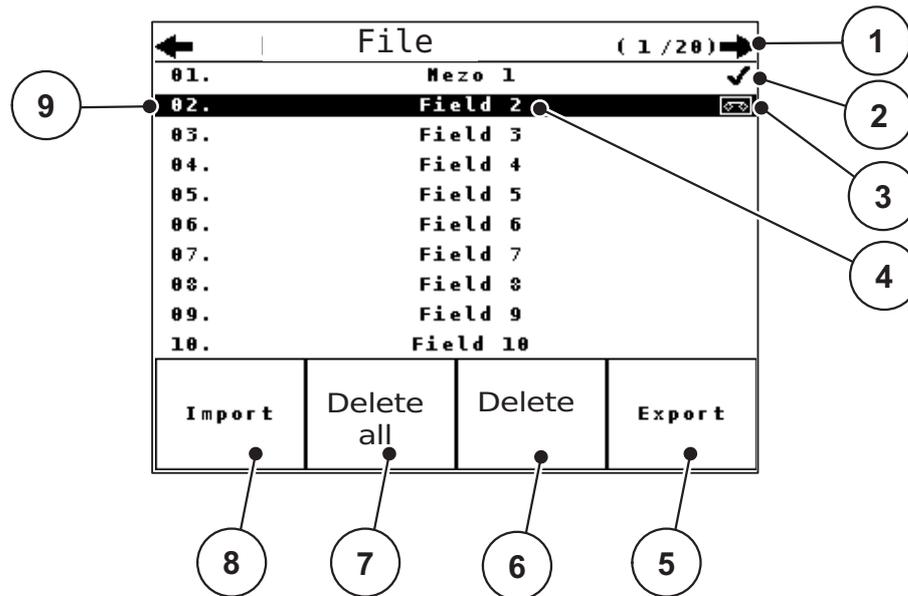


Figure 4.15: File menu

- [1] Display of page number
- [2] Display of filled file
- [3] Display of active file
- [4] File name
- [5] Function key Export
- [6] Function key Delete file
- [7] Function key Delete all files
- [8] Function key Import
- [9] Display of disc space

4.8.1 Selecting a file

Already saved files can be selected and processed. The data already saved in the file is **not overwritten**, but the new values are **added**.

NOTICE

With the **left/right arrow keys** you can jump forward and back through the pages in the **file** menu.

1. Select the required file.
2. Press the **Enter key**.
 - ▷ The first page of the current file is displayed.

4.8.2 Starting the recording

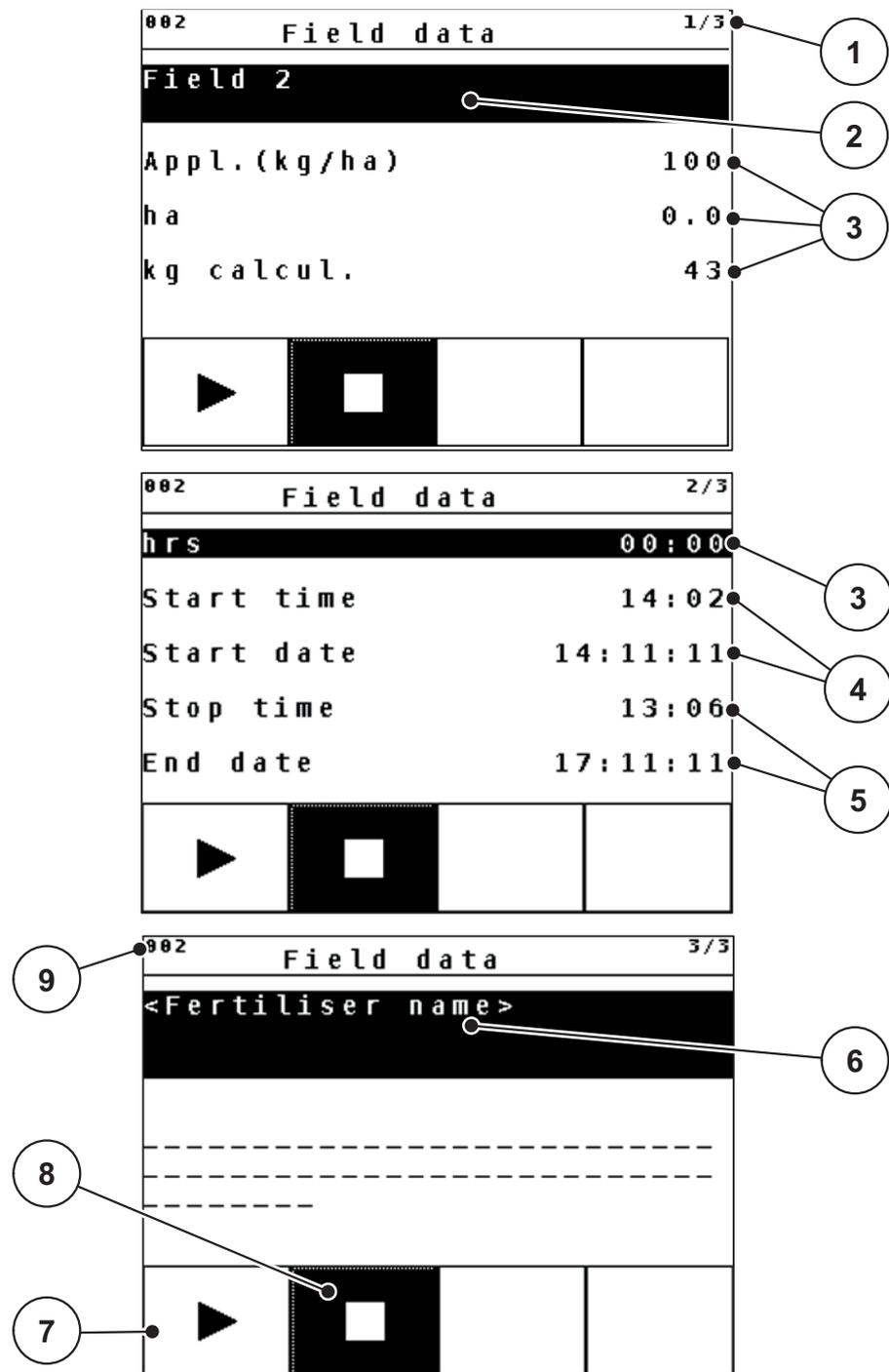


Figure 4.16: Display of current file

- [1] Display of the page number
- [2] Name field of field data/file
- [3] Value fields
- [4] Display of the start time/date
- [5] Display of the stop time/date
- [6] Name field of fertiliser
- [7] Function key Start
- [8] Function key Stop
- [9] Display of disc space

3. Press the **F1** function key [7].
 - ▷ The recording starts.
 - ▷ The **File** menu displays the **recording symbol** for the current file.
 - ▷ The **operating screen** displays the **recording symbol**.

NOTICE

If another file is opened, this file will be stopped. The active file cannot be deleted.

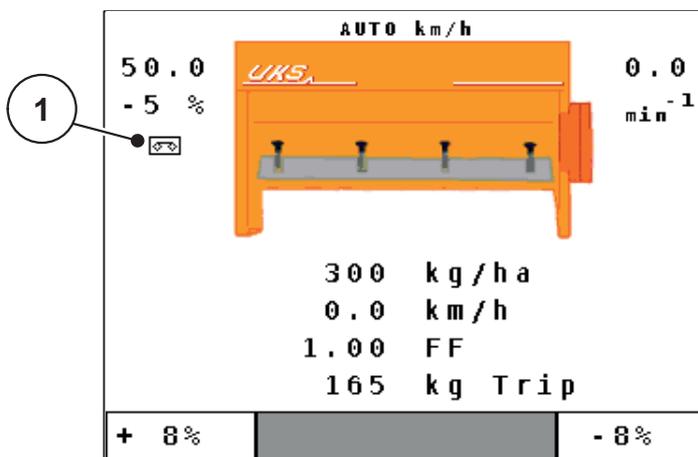
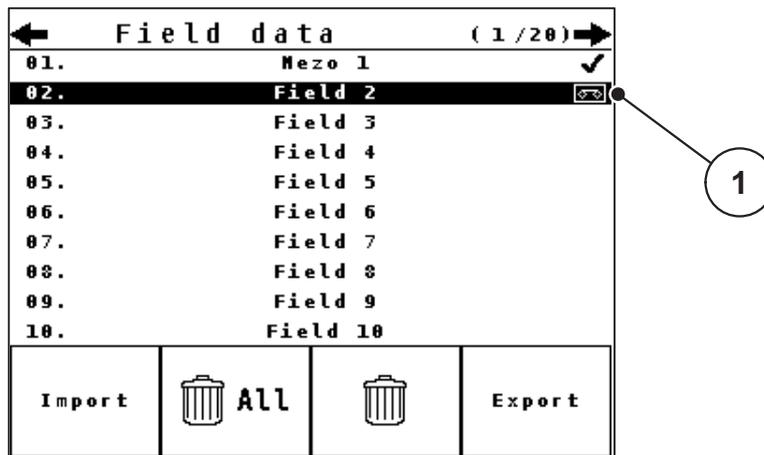


Figure 4.17: Recording symbol display

[1] Recording symbol

4.8.3 Stopping the recording

1. Open the first page of the active file in the **File** menu.
2. Press the **F2** function key below the stop symbol.
 - ▷ The recording is stopped.

4.8.4 Importing and exporting files

The control unit QUANTRON-A allows the import and/or export of the recorded field data/files.

Importing files (PC to QUANTRON-A)

Requirements:

- Use the USB stick supplied.
 - Do not alter the directory structure on the USB stick.
 - The data on the USB stick are stored in the directory \\USB-BOX\QuantronA\Dateien\Import.
1. Open the **File** menu.
 2. Press the **F1 Import** function key (see [figure 4.15](#)).
 - ▷ Error message no. 7 appears indicating that the current files will be overwritten. See [6.1: Meaning of the alarm messages, page 69](#)
 3. Press the **Start/Stop key**.
 - ▷ The bar shows the progress of the transfer.

NOTICE

You can interrupt the import of field data at any time by pressing the **ESC key!**

The consequences of importing field data/files are as follows

- All files currently stored in the QUANTRON-A are overwritten.
- If you have defined the application rate on the PC, the application rate is automatically transferred and immediately activated in the **Fertiliser settings** when starting the file.
- If you enter an application rate outside the range of 10-3000, the value in the **Fertiliser settings** menu is not overwritten.

Exporting field data/files (QUANTRON-A to PC)

Requirements:

- Use the USB stick supplied.
 - Do not alter the directory structure on the USB stick.
 - The data on the USB stick are stored in the directory \\USB-BOX\QuantronA\Dateien\Export.
1. Open the **File** menu.
 2. Press the **F4 Export** function key (see [figure 4.15](#)).
 - ▷ **The bar shows the progress of the transfer.**

4.9 System/test

Use this menu for the system and test settings of the control unit.

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

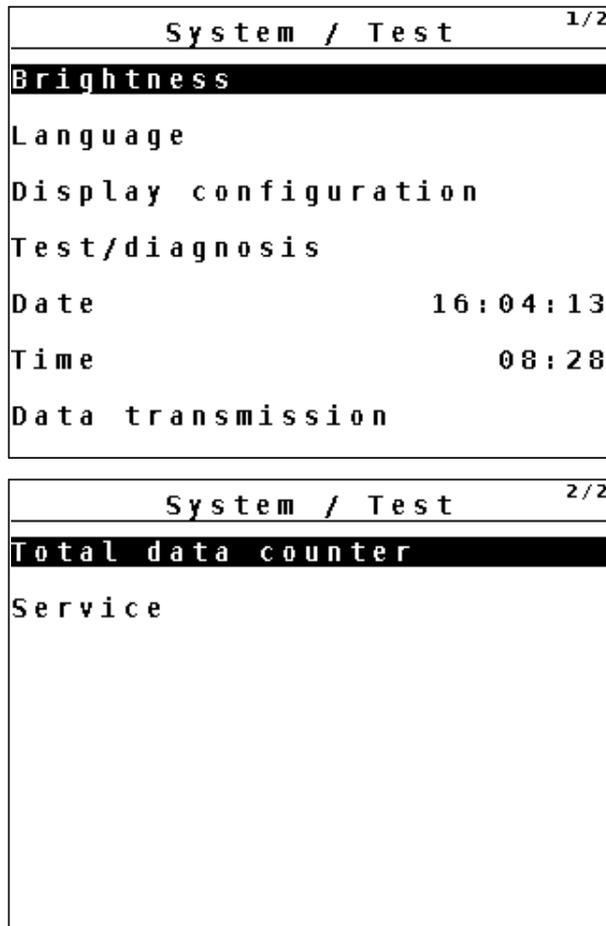


Figure 4.18: System/test menu

Sub-menu	Meaning	Description
Brightness	Display settings	The settings can be adjusted with the function keys + or -.
Language	Language setting for menu navigation.	Page 57
Display configuration	Determining the displays on the operating screen.	Page 58
Test/diagnosis	Checking of actuators and sensors.	Page 59
Date	Setting the current date.	Selection and modification of the settings by means of the Arrow keys ; confirmation using the Enter key

Sub-menu	Meaning	Description
Time	Setting the current time.	Selection and modification of the settings by means of the Arrow keys ; confirmation using the Enter key
Data transmission	Menu for data exchange and serial protocols	Page 61
Total data counter	Display of total <ul style="list-style-type: none"> ● spread quantity in kg ● spread area in ha ● spread time in h ● distance travelled in km 	
Service	Service settings	Password-protected; only accessible to service personnel

4.9.1 Setting the language

In the QUANTRON-A control unit, **several languages** can be set.

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

NOTICE

Should you miss a language, please contact your dealer.

1. Open the **System/test > Language** menu.
 - ▷ The first of two pages is displayed.
2. Select the language to be used for the menus.
3. Press the **Enter key**.
 - ▷ **The selection is confirmed.**
 - ▷ **The QUANTRON-A control unit restarts automatically.**
 - ▷ **The menus are displayed in the selected language.**

4.9.2 Display configuration

The display fields in the operating screen of the control unit can be configured as desired. You can assign the three display fields with the following values if desired:

- Forward speed
- Flow factor (FF)
- Time
- ha trip
- kg trip
- m trip
- kg rest
- km Rest
- ha rest

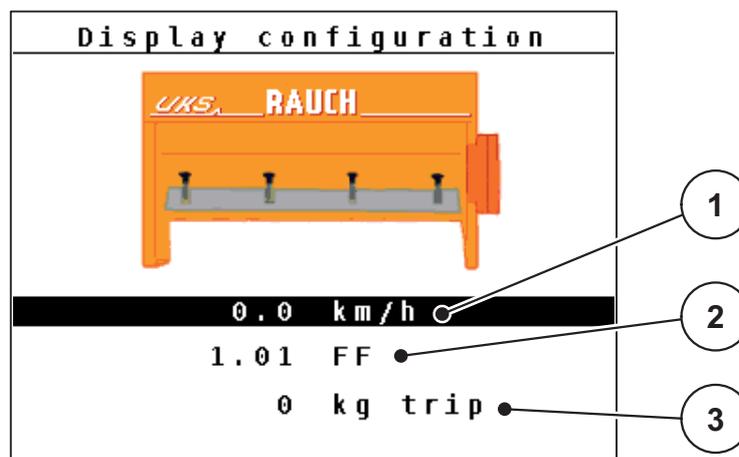


Figure 4.19: Display configuration menu

- [1] Display field 1
- [2] Display field 2
- [3] Display field 3

Select display

1. Open the **System/test > Display configuration** menu.
2. Select the required **display field**.
3. Press the **Enter key**.
 - ▷ The available options are displayed in a list.
4. Select the new value to be assigned to the display field.
5. Press the **Enter key**.
 - ▷ The **operating screen** is shown on the display. The respective **display field** displays the new value.

4.9.3 Test/diagnosis

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

NOTICE

This menu is for information purposes only.

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

Sub-menu	Meaning	Description
Dosing slider test points	Test for approaching the various position points of the metering slide.	Checking the calibration
Metering slide	Manual actuation of the metering slide	
Speed sensor	Checking the agitator shaft speed	
Voltage	Checking the operating voltage.	
Level sensor	Checking the level sensor	

Slide example

1. Open the **System/test > Test/diagnosis** menu.
2. Select the **metering slide** in the menu.
3. Press the **Enter** key.
 - ▷ The actuator/sensor status is displayed.

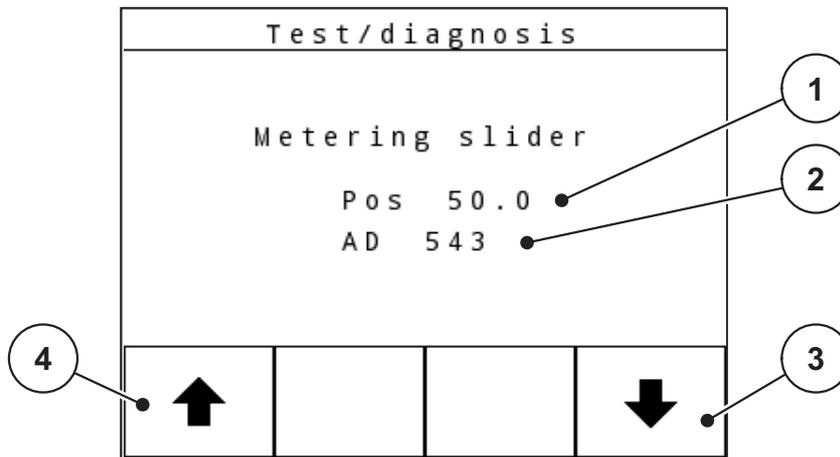


Figure 4.20: Test/diagnosis; example: Slide

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

▲ CAUTION



Risk of injury due to moving machine parts.

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

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

The status of the signal for the left and right hand side is displayed separately by means of the **signal** display.

The actuators can be extended and retracted by pressing the **F1 - F4** function keys.

4.9.4 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 cards
TUVR	Protocol for automatic section control, area-specific quantity changes and GPS speed by means of an external Trimble Terminal.
GPS km/h	Protocol for GPS speed with external Trimble Terminal.
GPS Control	Protocol for the automatic section control with an external terminal
VRA GPS control	VRA Variable Rate Application Protocol for the automatic transmission of the target application rate and the automatic section control

4.9.5 Service

NOTICE

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

As a general rule, we recommend that all settings in this menu are carried out by authorized service personnel.

4.10 Info

Information on the machine control can be obtained from the Info menu.

NOTICE

This menu provides information on the configuration of the machine.

The information list depends on the equipment of the machine.

4.11 Special functions

4.11.1 Text input

In some menus, freely editable text can be entered.

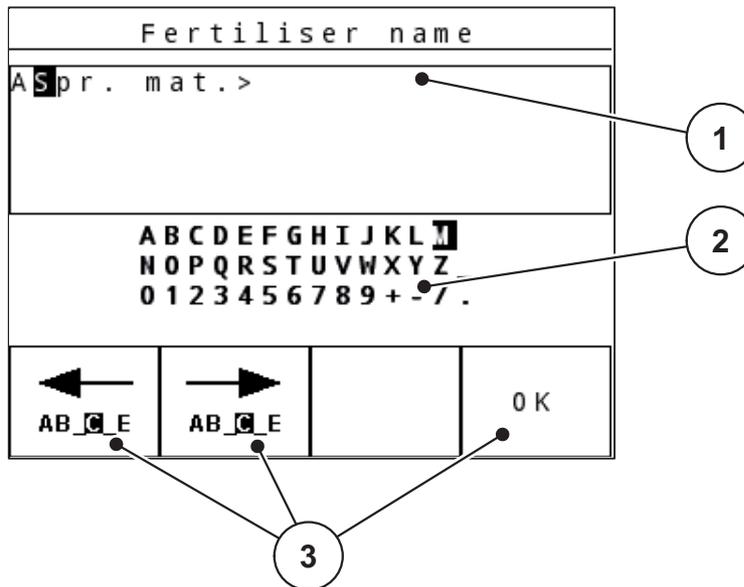


Figure 4.21: Text input menu (example)

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

Entering text:

1. Switch from the superordinate menu to the **Text input** menu.
2. Use the **function keys** to move the cursor to the position of the character to be written first in the input field.
3. Use the **arrow keys** to highlight the character to be written in the character field.
4. Press the **Enter key**.
 - ▷ The highlighted character appears in the input field.
 - ▷ The cursor jumps to the next position.

Continue until you have entered the entire text.

5. Press the **OK** function key.
 - ▷ The control unit saves the text.
 - ▷ The previous menu is displayed.

Overwriting characters:

A single character can be overwritten by another character.

1. Use the **function keys** to move the cursor to the position of the character to be deleted first in the input field.
2. Use the **arrow keys** to select the character to be written in the character field.
3. Press the **Enter key**.
 - ▷ The character is overwritten.
4. To **confirm** the input, press the **OK** function key.
 - ▷ The text will be saved to the control unit.
 - ▷ The previous menu is displayed.

NOTICE

Individual characters can only be deleted by replacing them with blank spaces (underline at the end of the first 2 character lines).

Deleting an input:

The complete input can be deleted.

1. Press the **C 100 % key**.
 - ▷ The complete input is deleted.
2. Enter new text, if necessary.
3. Press the **OK** function key.

4.11.2 Entering values with the cursor keys

In some menus, numerical values can be entered.

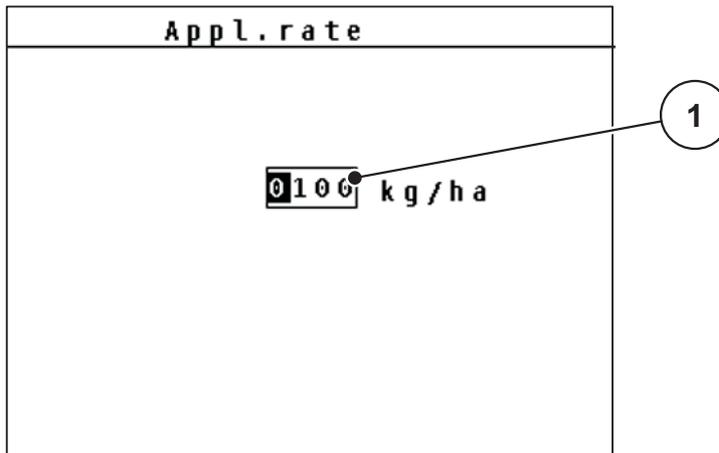


Figure 4.22: Input of numerical value (example application rate)

[1] Input field

Requirements:

You are already in the menu in which you can enter numerical values.

1. Use the **horizontal arrow keys** to move the cursor to the position of the numerical value to be written first in the input field.
2. 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.
3. Press the **Enter key**.

Deleting an input:

The complete input can be deleted.

1. Press the **C 100 % key**.
 - ▷ The complete input is deleted.

5 Spreading operation with the QUANTRON-A control unit

The QUANTRON-A control unit supports you with the setting of your machine before you start your work. During spreading, functions of the control unit are also active in the background. This allows you to monitor the quality of the fertiliser spreading.

5.1 Calling up the residual material during spreading

During spreading, the residual material is continuously recalculated and displayed.

During spreading, i.e. with the metering slides open, change to the **Rest (kg, ha, m)** menu to display the residual material currently in the hopper.

NOTICE

If the values are to be permanently monitored during spreading, freely assignable display fields in the operating screen can also be assigned with the **kg rest**, **ha rest** or **m rest** values, refer to chapter [4.9.2: Display configuration, page 58](#).

5.2 Spreading in the AUTO km/h operating mode

1. Switch on the control unit QUANTRON-A.
2. Open the **Machine configurat. > AUTO/MAN mode** menu.
3. Select **AUTO km/h** in the menu.
4. Configure the fertiliser and/or spreading material settings:
 - Application rate (kg/ha or g/m²)
 - Agitator shaft speed
5. Fill in the spreading material.

NOTICE

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

6. Conduct a calibration for flow factor determination
or
Obtain the flow factor from the fertiliser chart.
7. Enter the flow factor manually.
8. Press the **Start/Stop** key.
- ▷ **The spreading starts.**

5.3 Spreading in the MAN km/h operating mode

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

1. Switch on the control unit QUANTRON-A.
2. Open the **Machine configurat. > AUTO/MAN mode** menu.
3. Select **MAN km/h** in the menu.
4. Enter the forward speed.
5. Press **OK**.
6. Configure the fertiliser settings:
 - Application rate (kg/ha or g/m²)
 - Agitator shaft speed
7. Fill in the spreading material.

NOTICE

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

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

NOTICE

Always observe the set speed during spreading.

5.4 Spreading in the MAN scale operating mode

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

1. Switch on the control unit QUANTRON-A.
 2. Open the **Machine configurat. > AUTO/MAN mode** menu.
 3. Select **MAN scale** in the menu.
 4. Enter the position of the metering slide.
 5. Press the **Enter key**.
 6. Switch to the **operating screen**.
 7. Press the **Start/Stop key**.
- ▷ **The spreading starts.**

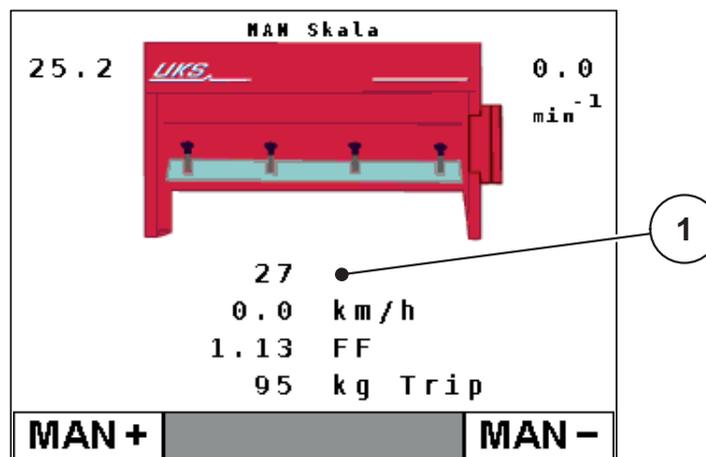


Figure 5.1: MAN scale operating screen

[1] Display of the current scale position of the metering slide

8. To change the metering slide opening, press the **F1** or **F4** function key.
 - F1: MAN+** to increase the metering slide opening or
 - F4: MAN-** to reduce the metering slide opening.

With the **C/100 %** key, the previous settings are restored.

NOTICE

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

6 Alarm messages and possible causes

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

6.1 Meaning of the alarm messages

Message in display		Meaning
		<ul style="list-style-type: none"> ● Possible cause
Fault in dosing system. Stop!		The metering system actuator cannot reach the target value. <ul style="list-style-type: none"> ● Blockage ● No position feedback
Maximum 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 (+/- appl. rate) exceeds the maximum metering opening.
Flow factor exceeds acceptable limits.		The newly calculated or entered flow factor is outside the valid range. The flow factor must lie within one of the following ranges (depending on the agitator shaft speed) <ul style="list-style-type: none"> ● between 0.4 to 2.5 with an agitator shaft speed of 15 rpm ● between 0.4 to 3.5 with an agitator shaft speed of 28 rpm
Hopper empty!		The level sensor reports "empty". <ul style="list-style-type: none"> ● The hopper is empty.
Data will be deleted! Delete = START Cancel = ESC		Safety alarm to prevent the unintentional deletion of data.
Only for g/m ²	Spreading density Min. setting = 5 Max. setting = 40	Spreading density for dewing spreading material outside of the valid range. <ul style="list-style-type: none"> ● The set value exceeds the reference values.
	Spreading density Min. setting = 75 Max. setting = 300	Spreading density for blunting spreading material outside of the valid range. <ul style="list-style-type: none"> ● The set value exceeds the reference values.
	Spreading density Min. setting = 1 Max. setting = 300	Spreading density for fertiliser outside of the valid range. <ul style="list-style-type: none"> ● The set value exceeds the reference values.

6 Alarm messages and possible causes

Message in display		Meaning
		● Possible cause
Only for kg/ha	Min. setting = 50 Max. setting = 400	Application rate for dewing spreading material outside of the valid range. ● The set value exceeds the reference values.
	Min. setting = 750 Max. setting = 3000	Application rate for blunting spreading material outside of the valid range. ● The set value exceeds the reference values.
	Min. setting = 1 Max. setting = 3000	Application rate for fertiliser outside of the valid range. ● The set value exceeds the reference values.
Min. setting = xx Max. setting = xx		Reference to the value range of the flow factor . ● Entered value is not permitted. ● Range depends on the agitator shaft speed
Transmission fault. No RS232 connection		An error has occurred during data transmission to the control unit. The data have not been transmitted.
Memory full. Delete one spreading material		A maximum of 30 fertiliser charts can be saved. ● No additional saving possible
		The agitator shaft speed is greater than 1.5 rpm with a setting of 15 rpm and/or greater than 2 rpm with a setting of 28 rpm. ● The warning symbol appears below the indicated speed (rpm) in the operating screen.
Speed has changed. New calibration required!		The RPM has been changed in the spread. material settings menu. ● No additional saving possible
Number of slider openings is outside limits Min. setting = 0 Max. setting = 10		Number of closed metering slide openings outside of the valid range.
Agitator shaft error, stop.		No speed detection ● Speed sensor defective ● Stop machine and contact dealer.
Agitator shaft is rotating without activation		Agitator shaft is rotating without activation of spreading operation ● Stop machine and contact dealer.
Agitator shaft speed could not be reached.		Set agitator shaft speed could not be reached ● Incorrect controller parameter ● Agitator shaft blocked ● Oil level too low

6.2 Clearing an error/alarm

6.2.1 Acknowledging an alarm message

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

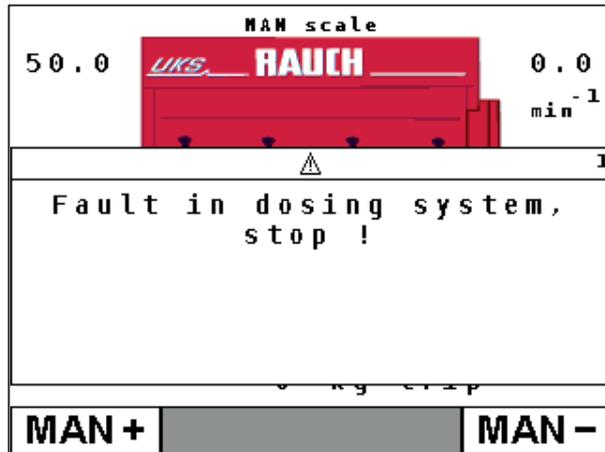


Figure 6.1: Alarm message (e.g. dosing system)

Acknowledging an alarm message:

1. Correct the cause of the alarm message.
Refer to the operator's manual of the fertiliser spreader and section [6.1: Meaning of the alarm messages, page 69](#).
 2. Press the **C/100%** key
- ▷ **The alarm message is cleared.**

7 Special equipment

No.	Illustration	Designation
1		Level sensor
2		Forward speed sensor for QUANTRON-A
3		Y cable RS232 for data exchange (e.g. GPS, N sensor, etc.)
4		GPS cable and receiver

Index

A

- Alarm messages 69
- Application rate 12, 31
 - Change 40
 - Residual material 65
- Application rate adjustment 12

B

- Brightness 56

C

- Calibration 41
- Calibration test 34
 - Working speed 34
- Connection 15, 17
 - Example 18–20
 - Power supply 15
 - Socket 15
- Control unit
 - Attachment 15
 - Connection 15, 17
 - Connection diagram 18–20
 - Display 9
 - Machine serial number 17
 - operation 21–64

D

- Display 7, 9
- Display configuration 56, 58
- Display field 12, 58

E

- Enter key 8

F

- Fast emptying 50
- Faults 69
- Fertiliser 21
- Fertiliser chart
 - copy 39
 - creation 38
 - delete 39
- Fertiliser settings
 - Application rate 31
- Field data 51

- Forward speed 45
 - calibration 41
 - Signal source 42
 - simulated 12

- Function key 8

K

- Key
 - Arrow keys 8
 - Menu 23
- key
 - Clear/Reset 8
 - Enter 8
 - ESC 8
 - Function key 8
 - kg key 8
 - Menu 8
 - ON/OFF 7
 - Start/Stop 7
 - T key 7

- kg key 8

L

- Language 56–57
- Level sensor 59
- LINUS 11

M

- Machine configurat.
 - Application rate 40
 - Operating mode 40
 - Tractor 40
- Main menu 56
 - Menu key 23
- Menu
 - Navigation 3, 8, 23
- Menu key 8
- Menu overview
 - Fertiliser spreaders 14
 - Winter service 13
- Metering slide 9
 - Test points 59–60
- Mode 56
- Mounting bracket 17

N

Navigation

Keys & buttons 8

O

Operating mode 11, 40

AUTO km/h 45, 66

MAN km/h 45, 67

MAN scale 46, 68

Operating screen 9

LINUS 11

UKS fertiliser spreader 11

UKS winter service 9

Operation 21–64

Overwriting 63

R

Residual material 65

RPM 11

Warning icon 12

S

Special equipment 73

Special functions

Text input 63

Spreading density 29

Spreading material settings

Spreading density 29

Spreading operation 65

AUTO km/h 66

MAN km/h 67

MAN scale 68

Residual material 65

Structural menu overview

Fertiliser spreaders 14

Winter service 13

System/test 56, 59

Brightness 56

Display configuration 56

Language 56–57

Mode 56

Test/diagnosis 56

T

Test/diagnosis 56, 59–60

Level sensor 59

Metering slide 59–60

Test points 59

Voltage 59

Text input 63

delete 63

Tractor 40

Requirement 15

U

UKS 9, 11

V

Voltage 59

W

Weighing trip counter 8

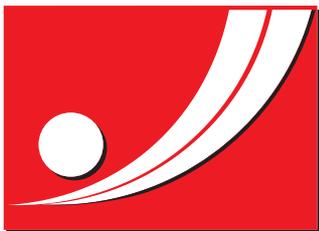
Working speed 34

Terms/conditions of warranty

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

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

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



RAUCH
POWER FOR PRECISION

RAUCH Landmaschinenfabrik GmbH



Landstraße 14 · D-76547 Sinzheim



Victoria-Boulevard E200 · D-77836 Rheinmünster

Phone +49 (0) 7221/985-0 · Fax +49 (0) 7221/985-200
info@rauch.de · www.rauch.de · wap.rauch.de

