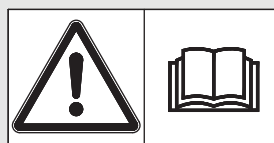
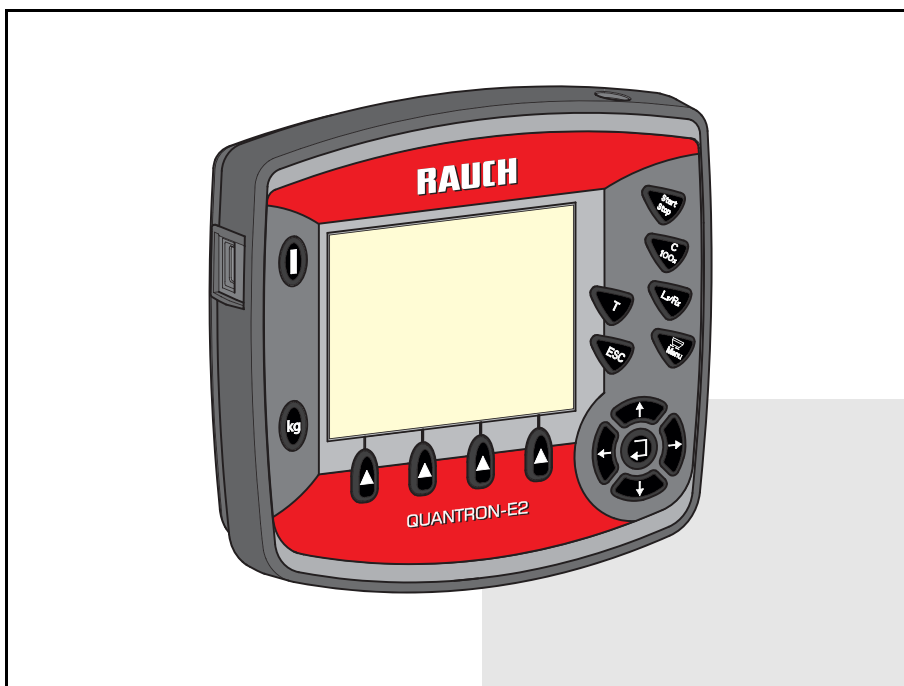




**RAUCH**

wir nehmen's genau

# OPERATING 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.

# QUANTRON-E2

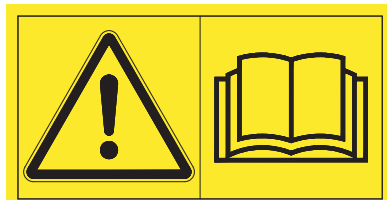
Original instruction manual

5901003-C-en-0913

## Preface

Dear customer

By purchasing the **QUANTRON-E2** control unit for the mineral fertiliser spreader **AXIS**, you have shown confidence in our product. Thank you very much! We want to justify this confidence. You have purchased a reliable, high-performance control unit. In case unexpected problems arise: our customer service is always there for you.



**Please read this instruction manual and the instruction manual for the machine carefully before operating the control unit and follow all instructions.**

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

You should be aware 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-E2** has been calibrated at the factory for the mineral fertiliser spreader with which it was supplied. It cannot be connected to another machine without requiring calibration.

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

---

Serial number of control unit:

---

Serial number of mineral fertiliser 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 machines 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 faithfully

RAUCH

Landmaschinenfabrik GmbH

## Preface

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**Terms/conditions of warranty**



# 1 User instructions

## 1.1 About this instruction manual

This instruction manual is an **integral part** of the control unit **QUANTRON-E2**.

The manual contains important instructions for a **safe, appropriate** and **economic use** as well as **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 instruction manual is part of the machine. The entire documentation must be kept in an easily accessible location close to where the control unit is used (e.g. on the tractor).


The instruction manual does not replace your **own responsibility** as the operator and operating personnel of the control unit QUANTRON-E2.

## 1.2 Notes on the depiction of information in this manual

### 1.2.1 Meaning 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 remaining dangers that may be encountered when operating the machine. The safety warnings are structured as follows:

<b>Signal word</b>	
Symbol	Explanation
<b>Example</b>	
<b>▲ DANGER</b>	
	<p><b>Description of the sources of danger</b></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 of hazard and source of danger**

This advice 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 of hazard and source of danger**

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

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

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

---

**⚠ CAUTION**



**Type of hazard and source of danger**

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

Ignoring these warnings can result in damage to the product or the general area.

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

---

**NOTICE**

General information contain application tips and particularly useful information but 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:

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

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

- 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 the supported AXIS versions

Function/options	AXIS W
Weighing spreader	<ul style="list-style-type: none"><li>● AXIS 20.1 W</li><li>● AXIS 30.1 W</li><li>● AXIS 40.1 W</li><li>● AXIS 50.1 W</li></ul>
Electrical adjustment of drop point	<ul style="list-style-type: none"><li>● AXIS 50.1 W</li></ul>

2.2 Layout of the control unit - overview

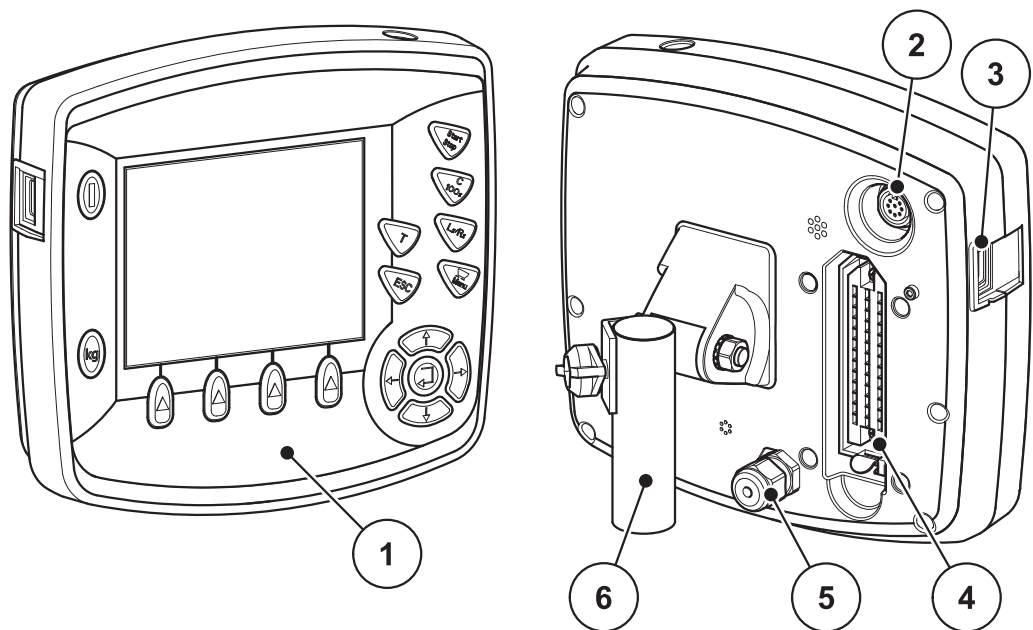
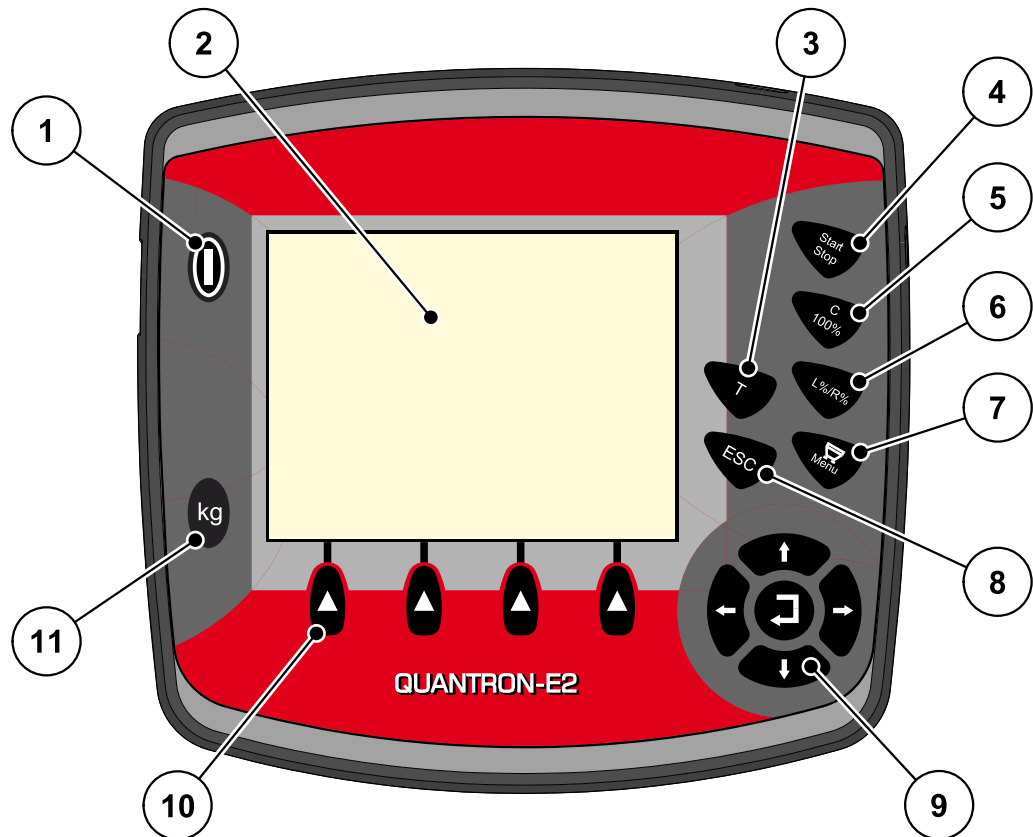


Figure 2.1: Control unit QUANTRON-E2

No.	Designation	Function
1	Operating panel	Consisting of foil buttons used to operate the device and the display for operating screens.
2	V24 data port	Serial interface (RS232) with LH 5000 and WPS protocol, designed for connecting a Y-RS232 cable for the connection to a remote terminal. Plug connection (DIN9684-1/ISO11786) for connecting the 7-pin to the 8-pin cable for the speed sensor.
3	USB port with cover	For exchanging data and updating the PC. Cover serves as protection against contamination.
4	Machine cable plug connector	39-pin plug connector for connecting the machine cable to sensors and actuating cylinders.
5	Power supply	3-pin plug connector conforming to DIN9680 / ISO12369 for connecting the power supply.
6	Bracket	Attaches the control unit to the tractor.

## 2.3 Control elements

QUANTRON-E2 is operated via **17 foil buttons** (13 firmly defined and 4 freely configurable foil buttons).



**Figure 2.2:** Operating panel on the front panel of the unit

### NOTICE

The instruction manual describes the functions of the QUANTRON-E2 control unit from software version 2.00.00.

No.	Designation	Function
1	ON/OFF	Switches the device on/off
2	Display	Display of operating screens
3	T key (TELIMAT)	<ul style="list-style-type: none"> <li>Key for displaying the TELIMAT position.</li> <li>The electrical TELIMAT automatically moves to the border spreading position.</li> </ul>
4	Start/Stop	Start/stop spreading.
5	Clear/Reset	<ul style="list-style-type: none"> <li>Clear an input in an input field,</li> <li>Reset the excess quantity to 100%,</li> <li>Acknowledge alarm messages.</li> </ul>

No.	Designation	Function
6	Preselected section setting	Preselection of sections to modify application rates (Left or Right or Left + Right).
7	Menu	Switch between operating screen and main menu.
8	ESC	For aborting information input and/or returning to the previous menu at the same time.
9	Navigation field	<p>4 <b>arrow keys</b> and one <b>enter key</b> for navigating through the menus and input fields.</p> <ul style="list-style-type: none"> <li>● <b>Arrow keys</b> for moving the cursor on the display or for highlighting an input field.</li> <li>● <b>Enter key</b> to confirm an input.</li> </ul>
10	Function keys F1 to F4	Selection of the functions displayed above the function keys.
11	Weighing-trip counter	<ul style="list-style-type: none"> <li>● Display of the remaining fertiliser that is still in the hopper.</li> <li>● Trip counter</li> <li>● kg left</li> <li>● Metre counter</li> </ul>

## 2.4 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 mineral fertiliser spreader is displayed in the **operating screen**.

### 2.4.1 Description of the operating screen

#### NOTICE

The exact representation of the operating screen depends on the actual settings selected, see chapter [4.10.2: Display configuration, page 73](#).

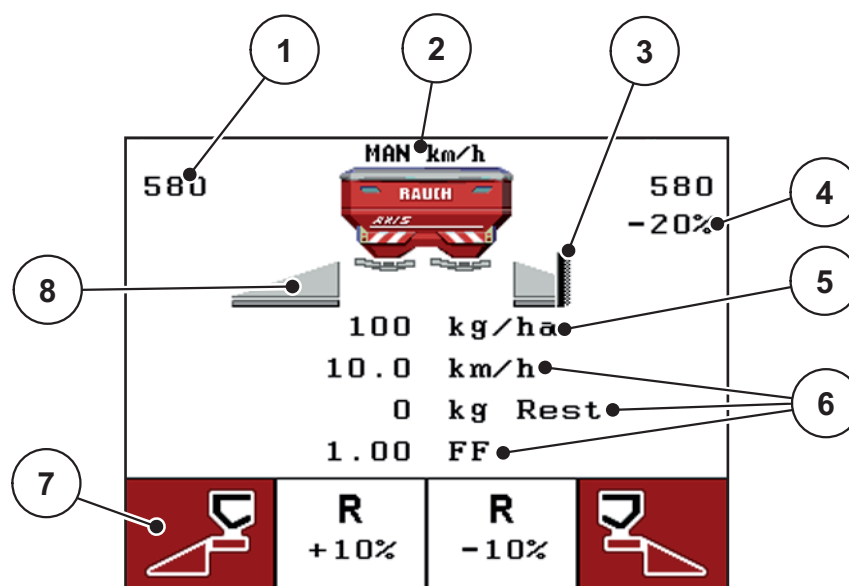


Figure 2.3: Control unit display

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

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. <ul style="list-style-type: none"> <li>● AUTO km/h uses the radar signal or wheel signal to determine the speed.</li> </ul>
3	TELIMAT icon	This symbol appears if the <b>TELIMAT sensors</b> are installed and the <b>TELIMAT function</b> is enabled (factory setting) or the <b>T key</b> is activated.
4	Quantity change right	Application rate adjustment (+/-) in percent. <ul style="list-style-type: none"> <li>● Display of application rate adjustment.</li> <li>● Range of values +/- <b>1.99 %</b> possible.</li> </ul>
5	Application rate	<b>Preset</b> application rate.
6	Display fields	Configurable display fields (here: forward speed, flow factor). <ul style="list-style-type: none"> <li>● Possible configuration: see chapter <a href="#">4.10.2: Display configuration, page 73</a>.</li> </ul>
7	Icon fields	Icon assignment to the fields <b>depending on the menu</b> . <ul style="list-style-type: none"> <li>● Selection of the function by means of the <b>function keys</b> below.</li> </ul>
8	Section left	Display of status of left section. <ul style="list-style-type: none"> <li>● <b>Bar icon</b>: Left-hand section <b>not selected</b>.</li> <li>● <b>Empty icon</b> (outline): Left-hand section <b>selected</b> but inactive.</li> <li>● Icon with <b>red</b> background: Section in <b>spreading mode</b>.</li> </ul>



2.4.2 Display of the metering slide status

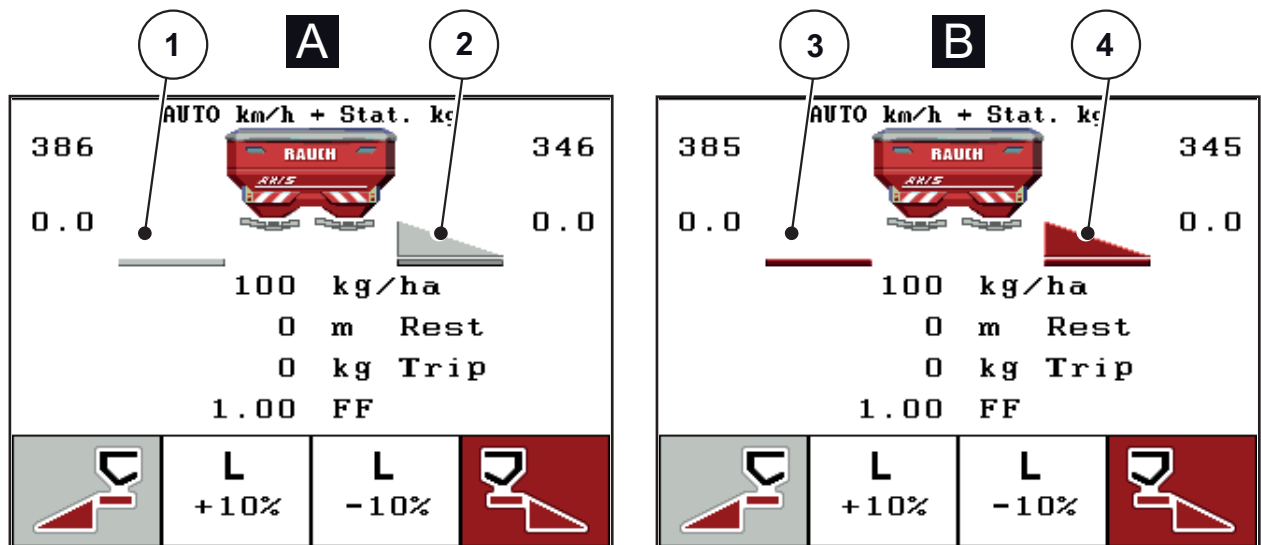
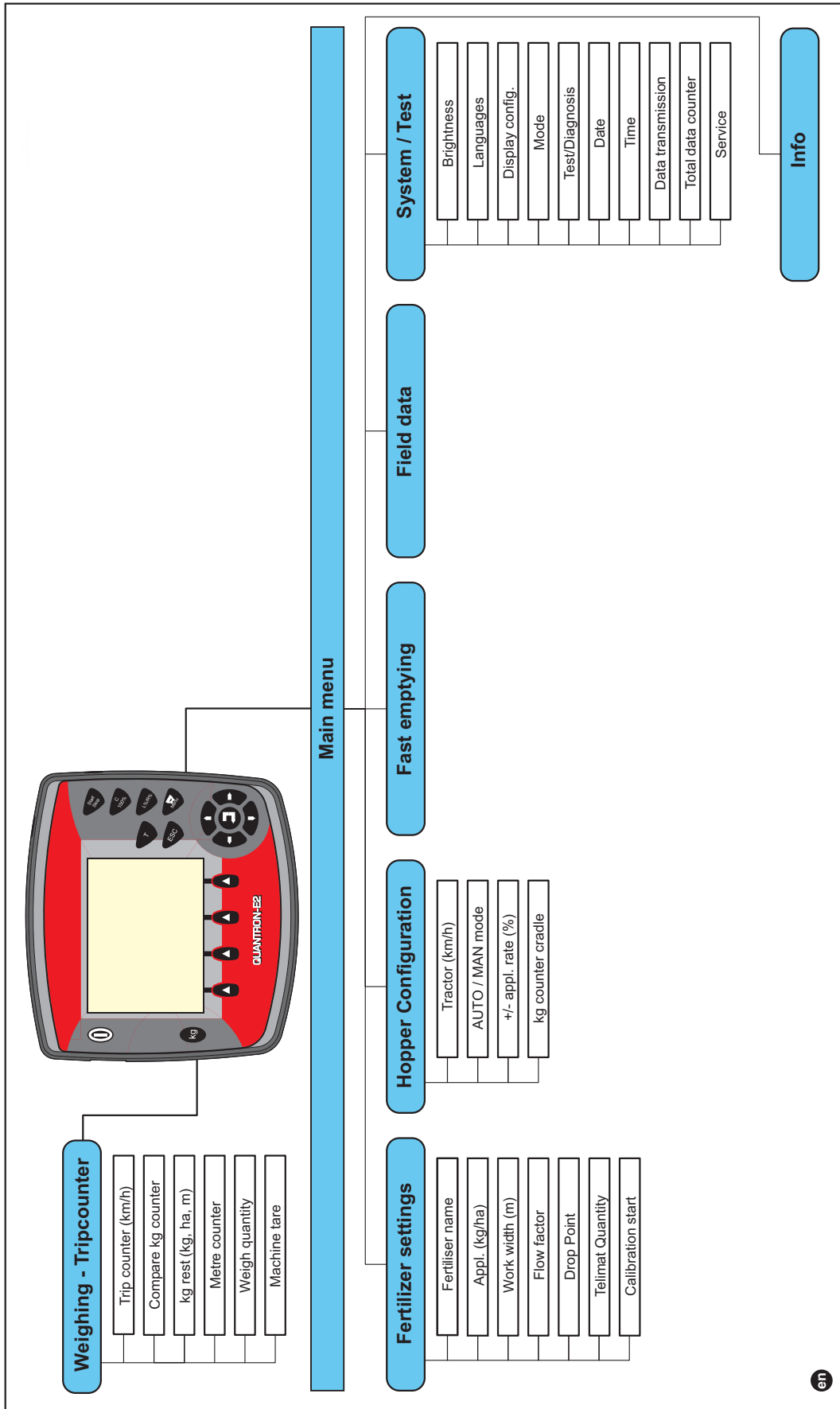


Figure 2.4: Display of the metering slide status

- [A] Spreading mode inactive (STOP)**
- [1] Section deactivated
- [2] Section activated
- [B] Machine in spreading mode (START)**
- [3] Section deactivated
- [4] Section activated

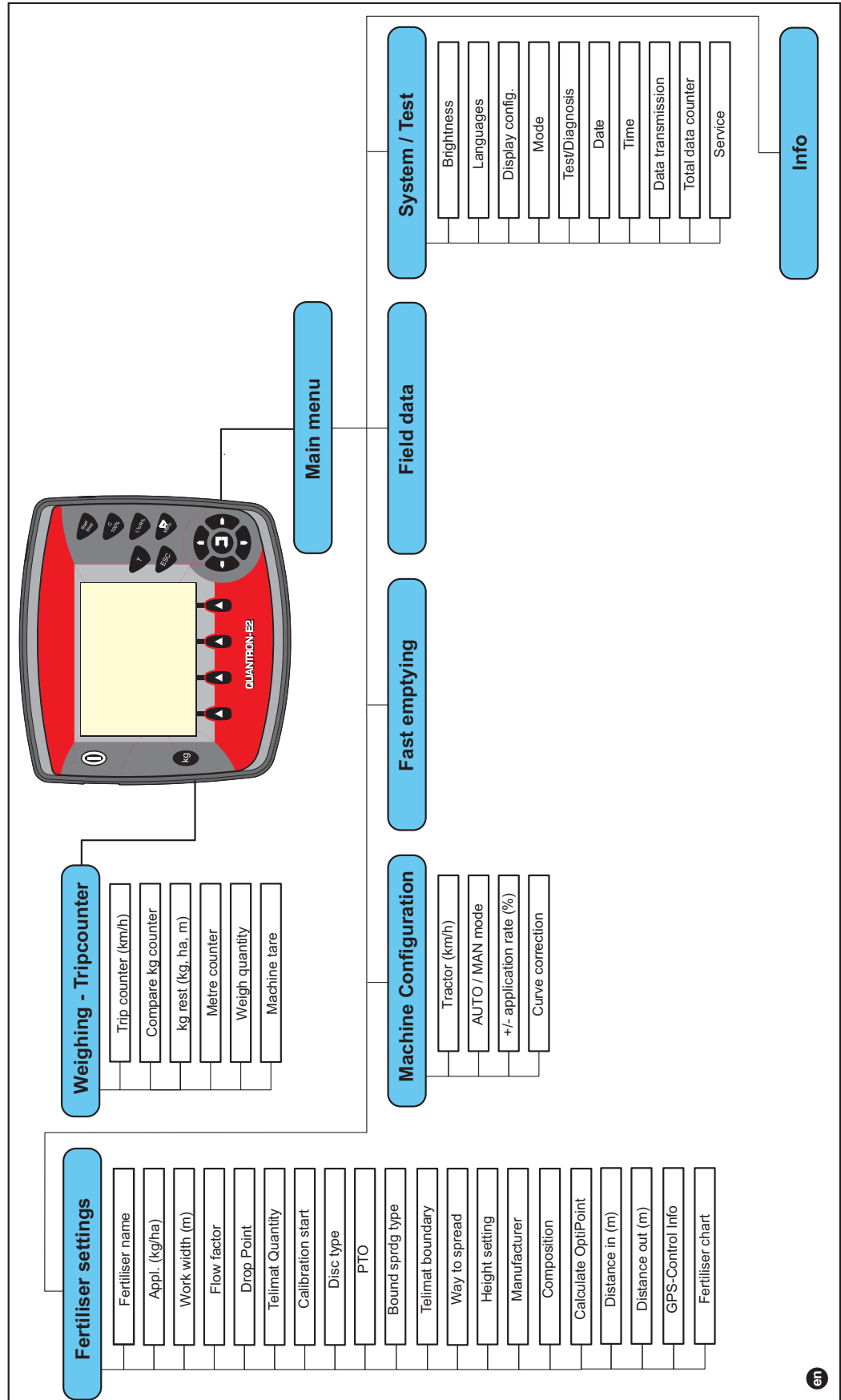
2.5 Structural overview of Easy Mode menu

Setting the mode is described in section [4.10.3: Mode, page 74](#).



## 2.6 Structural overview of Expert Mode menu

Setting the mode is described in section [4.10.3: Mode, page 74](#).





## 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.

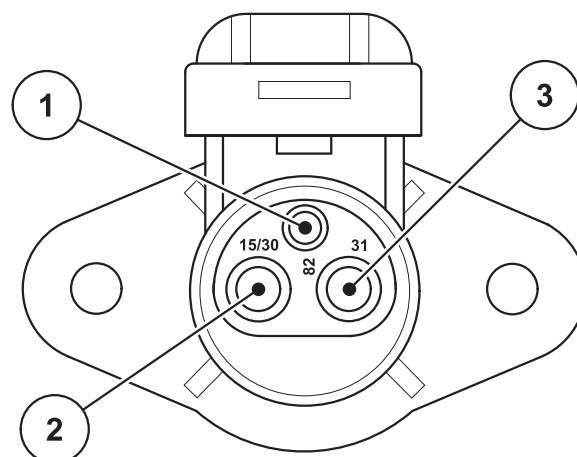
#### NOTICE

The 7-pin socket for the tractor and the forward speed sensor can be obtained as an expansion kit (option), see [figure 3.3](#) to [figure 3.5](#).

### 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).

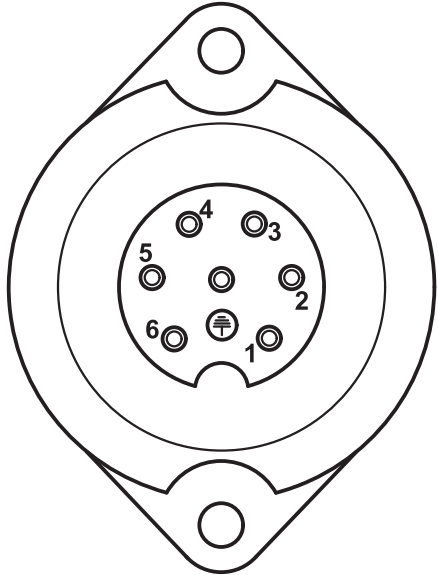


- [1] PIN 1: not required
- [2] PIN 2: (15/30): +12 V
- [3] PIN 3: (31): mass

**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. gearbox, 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-E2 control unit, the display shows the machine number for a short time.

#### NOTICE

##### Note machine number

The control unit QUANTRON-E2 has been calibrated at the factory for the mineral fertiliser spreader with which it was supplied.

**Connect the control unit to the correct mineral fertiliser spreader only.**

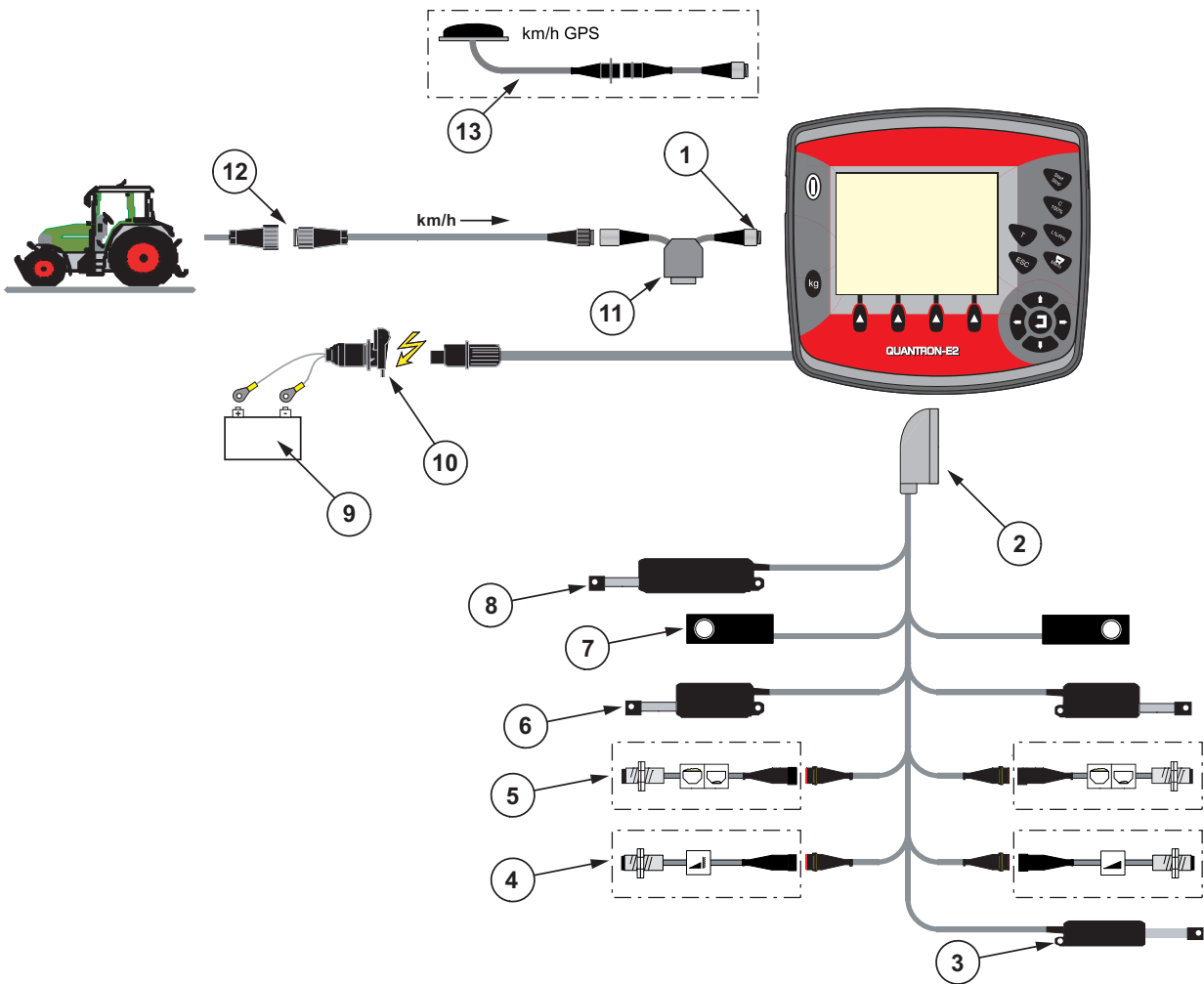
Depending on the equipment, there are different methods of attaching the control unit to the mineral fertiliser spreader. For schematic connection diagrams see below:

- for the standard connection, see [page 18](#),
- for the connection with the wheel sensor, see [page 19](#),
- for the connection with the wheel sensor and machine cable, see [page 20](#).

Carry out the installation in the following order.

- Select a suitable position in the tractor cabin (within **the driver's field of vision**) where you want to fix the control unit.
- Fix the control unit by means of **brackets** 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 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.

Schematic connection diagram: Standard

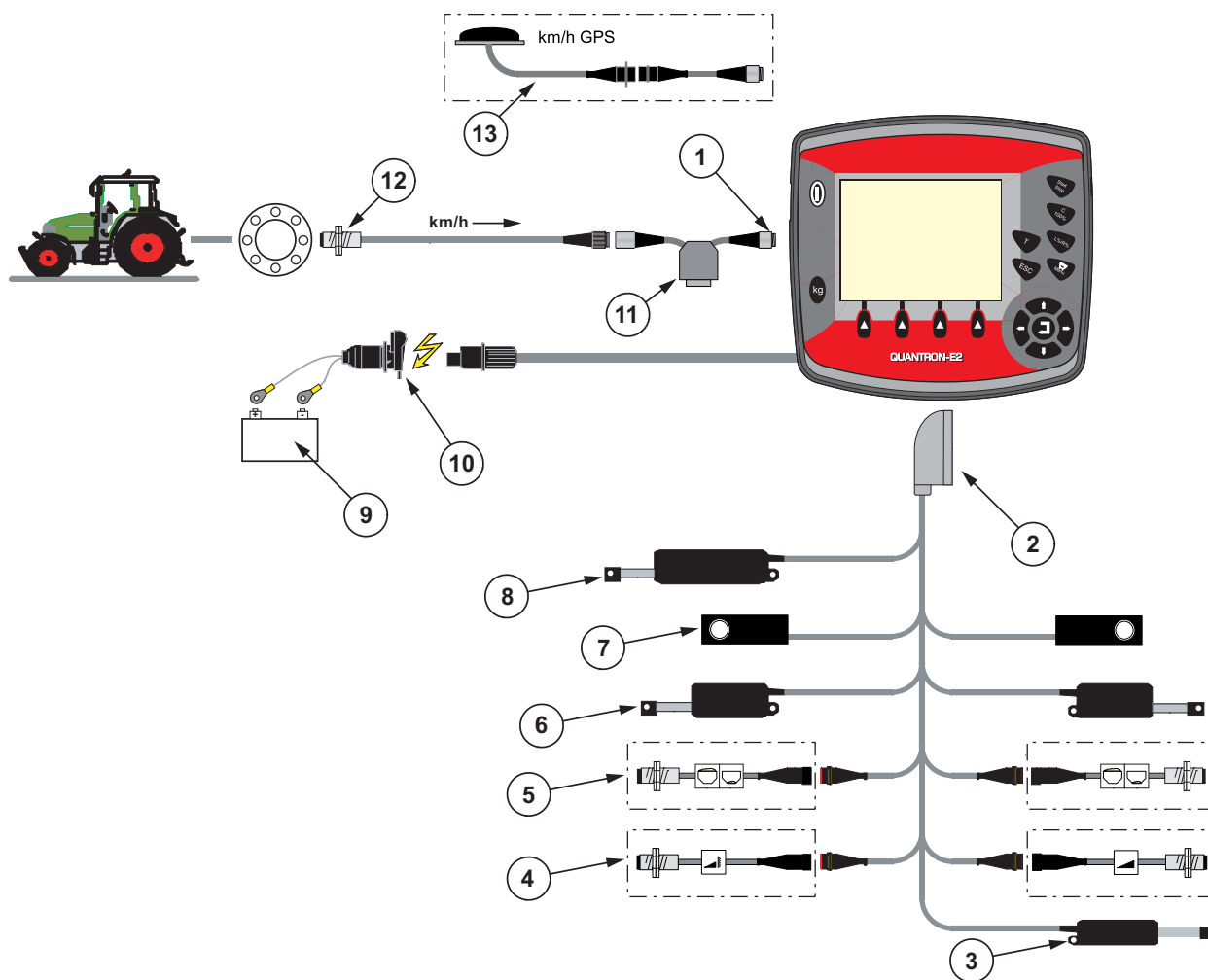


**Figure 3.3:** Schematic connection diagram QUANTRON-E2

- [1] Serial interface RS232, 8-pin plug connector
- [2] 39-pin machine plug
- [3] Option: Drop point adjustment (only for AXIS 50.1 W)
- [4] Option: TELIMAT sensor top/bottom
- [5] Option: Fill level sensor left/right
- [6] Metering slide actuator left/right
- [7] Weigh cell left/right
- [8] Optional: electrical TELIMAT
- [9] Battery
- [10] 3-pin plug connector conforming to DIN9680 / ISO12369
- [11] Option: Y-cable (V24 RS232 interface for storage medium)
- [12] 7-pin plug connector conforming to DIN9684
- [13] Option: GPS cable and receiver



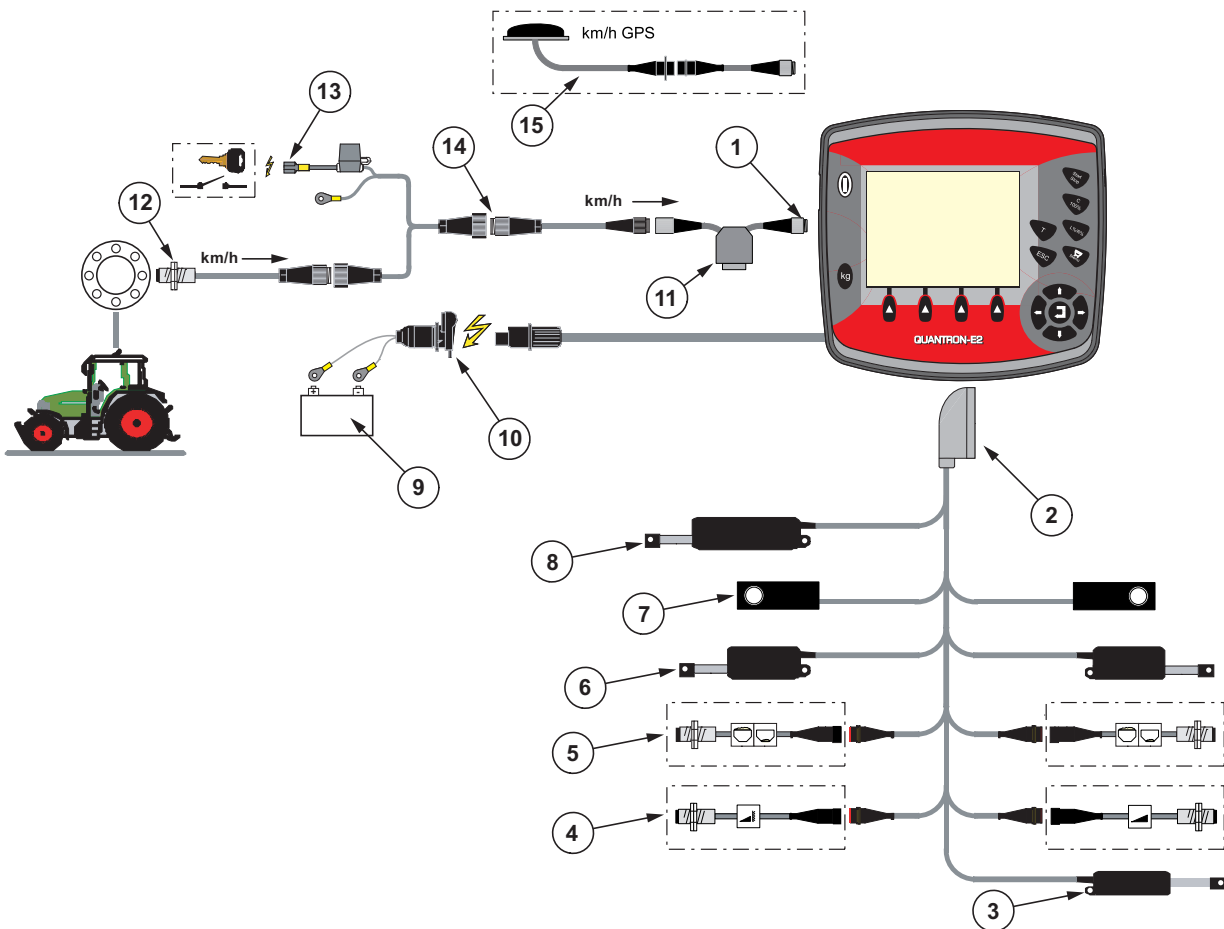
## Schematic connection diagram: Wheel sensor:



**Figure 3.4:** Schematic connection diagram QUANTRON-E2

- [1] Serial interface RS232, 8-pin plug connector
- [2] 39-pin machine plug
- [3] Option: Drop point adjustment (only for AXIS 50.1 W)
- [4] Option: TELIMAT sensor top/bottom
- [5] Option: Fill level sensor left/right
- [6] Metering slide actuator left/right
- [7] Weigh cell left/right
- [8] Optional: electrical TELIMAT
- [9] Battery
- [10] 3-pin plug connector conforming to DIN9680 / ISO12369
- [11] Option: Y-cable (V24 RS232 interface for storage medium)
- [12] Forward speed sensor
- [13] Option: GPS cable and receiver

Schematic connection diagram: Power supply via ignition lock



**Figure 3.5:** Schematic connection diagram QUANTRON-E2

- [1] Serial interface RS232, 8-pin plug connector
- [2] 39-pin machine plug
- [3] Option: Drop point adjustment (only for AXIS 50.1 W)
- [4] Option: TELIMAT sensor top/bottom
- [5] Option: Fill level sensor left/right
- [6] Metering slide actuator left/right
- [7] Weigh cell left/right
- [8] Optional: electrical TELIMAT
- [9] Battery
- [10] 3-pin plug connector conforming to DIN9680 / ISO12369
- [11] Option: Y-cable (V24 RS232 interface for storage medium)
- [12] Forward speed sensor
- [13] Option: QUANTRON-E2 power supply via ignition lock
- [14] 7-pin plug connector conforming to DIN9684
- [15] Option: GPS cable and receiver

### 3.4 Preparation of metering slide

The AXIS W mineral fertiliser spreaders are provided with an electronic slide actuator for adjusting the application rate.

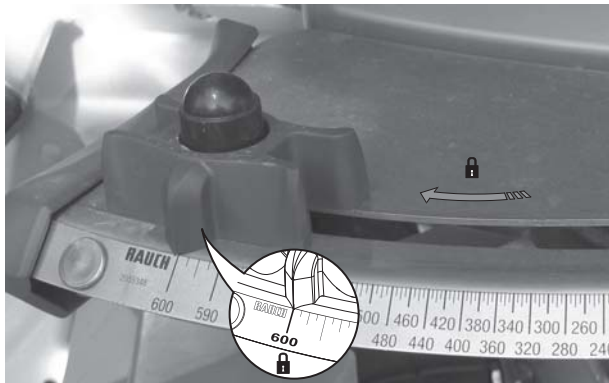
**▲ CAUTION**



**Damage to property caused by the incorrect position of the metering slide**

Operation of the actuators by the QUANTRON-E2 can cause damage to the metering slides if the stop levers are incorrectly positioned.

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



**Figure 3.6:** Preparation of the metering slide (example)

**NOTICE**

Observe the instruction manual of the fertiliser spreader.



## 4 Operation QUANTRON-E2

### ⚠ CAUTION



#### Risk of injury due to spread fertiliser!

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 to persons due to ejected fertiliser.

- ▶ **Before leaving for the place of spreading** the electronic control unit QUANTRON-E2 must always be switched off.

### 4.1 Activating the control unit

#### Preconditions:

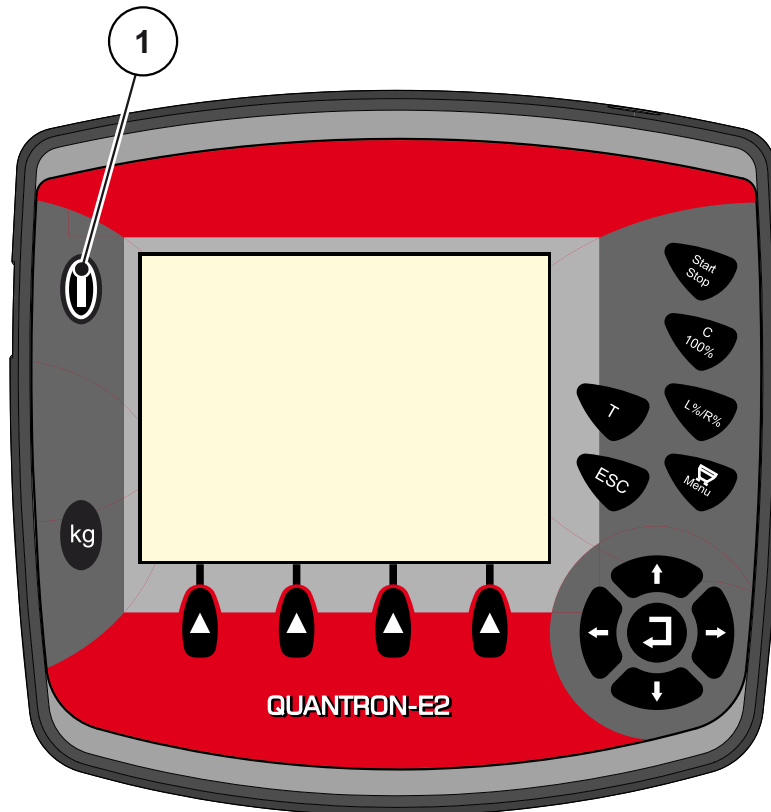
- The control unit is connected properly to the mineral fertiliser spreader and the tractor (for an example, see chapter [3.3: Connecting the control unit, page 17](#)).
- A minimum voltage of **11V** is guaranteed.

### NOTICE

The instruction manual describes the functions of the QUANTRON-E2 control unit **as of software version 2.00.00**.

**Activation:**

- Press the **ON/OFF** switch
  - ▷ After a few seconds, the **start-up screen** of the control unit appears.
  - ▷ Subsequently, the control unit displays the **Start diagnosis** for a few seconds.
  - ▷ Subsequently, the **operating screen** appears.



**Figure 4.1:** Start QUANTRON-E2

[1] ON/OFF switch

## 4.2 Navigation within the menu

### NOTICE

Important notes regarding the display and navigation between menus are provided in chapter [1.2.5: Menu hierarchy, keys and navigation, page 3](#).

#### Accessing the main menu

- Press the **menu key**. See [2.3: Control elements, page 7](#).
  - ▷ The main menu opens on the display.
  - ▷ The black bar indicates the first submenu.

### NOTICE

Not all parameters are shown simultaneously in one menu window. With the **arrow keys** you can jump to the adjacent window.

#### Accessing the submenu:

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

Windows appear which prompt various actions.

- Text input
- Value input
- Settings made in further submenus

#### Quitting the menu

- Confirm settings by pressing the **Enter key**.
  - ▷ You return to the **previous menu**.
- or
- press ESC key.
  - ▷ Previous settings are maintained.
  - ▷ You return to the **previous menu**.
- Press the **menu key**.
  - ▷ This returns you to the **operating screen**.
  - ▷ Pressing the **Menu key** once more returns you to the menu which you quit.

### 4.3 Weighing-Tripcounter

In this menu you find values regarding the spreading work carried out and functions for the weighing operation.

- Press the **kg** key at the control unit.
  - ▷ The **Weighing-Tripcounter** menu appears.

<b>Weighing-Tripcounter</b>
<b>Trip counter</b>
Compare kg counter
kg rest (kg, ha, m)
Metre counter
Weigh quantity
Machine tare

Figure 4.2: Weighing-Tripcounter menu

#### NOTICE

**Compare kg counter** is displayed in the **AUTO km/h + Stat. kg** and **AUTO km/h + AUTO kg** operating modes only when the option has been activated in the **Machine settings** menu ([page 62](#)).

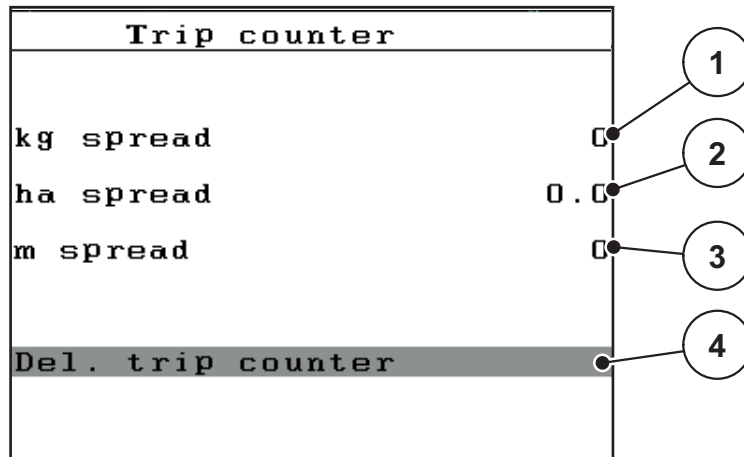
Submenu	Meaning	Description
Trip counter	Display of the applied spread quantity, area spread and spread distance.	<a href="#">page 27</a>
Compare kg counter	Display and comparison of fertiliser applied according to the scale.	<a href="#">page 28</a>
kg rest (kg, ha, m)	Display of the remaining spread quantity, area and distance.	<a href="#">page 29</a>
Metre counter	Display of the distance travelled since the last reset of the metre counter.	Reset (zeroing) by pressing the <b>C 100 % key</b>
Weigh quantity	The <b>Weigh quantity</b> window is displayed.	<a href="#">page 31</a>
Machine tare	Weighing value for empty scales is set to "0 kg".	<a href="#">page 33</a>



### 4.3.1 Trip counter

In this menu, you can read 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

#### Clearing the trip counter:

1. Call up the **Weighing-Tripcounter > Trip counter** submenu.
  - ▷ The values for spread quantity, spread area and spread distance measured **since the last deletion** are shown on the display.

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.
  - ▷ This returns you to the operating screen.

#### Checking the trip counter during spreading:

During the spreading work, i.e. with the slides open, you can change to the **Trip counter menu** and obtain the current values there.

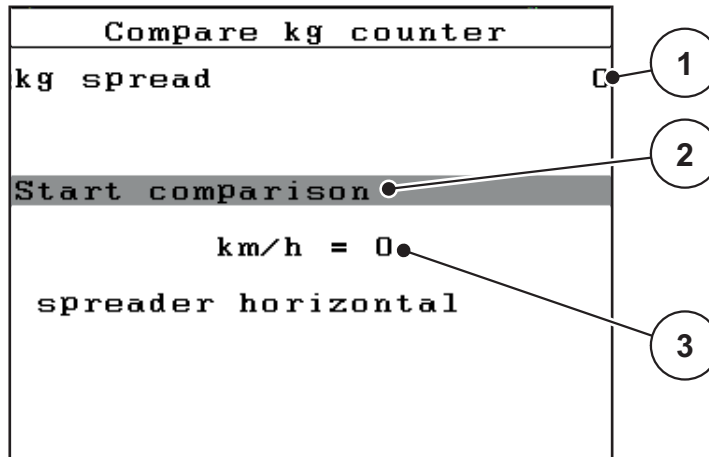
#### NOTICE

If you wish to continuously observe the values during the spreading work, you may also assign the freely selectable display fields on the operating screen with **kg Trip**, **ha Trip** or **m Trip** see [4.10.2: Display configuration, page 73](#).

### 4.3.2 Determining the applied fertiliser quantity

After the spreading work, the **Compare kg counter** menu displays the fertilizer quantity applied according to the scale. You can transfer this value to the counters.

The menu displays the applied fertiliser quantity in kg.



**Figure 4.4:** Compare kg counter menu

- [1] Applied fertiliser quantity display field
- [2] Start comparison
- [3] Forward speed display field

#### NOTICE

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

#### Comparing the kg counter

1. Call up the **Weighing-Tripcounter > Compare kg counter** submenu.  
The **Start comparison** field is highlighted.
2. Confirm by pressing the **Enter key**
  - ▷ The applied fertiliser quantity has been transferred to the **Trip counter**, the **Field data** and the **Total data counter**.
3. Press the **kg** key.
  - ▷ The display shows the operating screen.

#### NOTICE

In the event of a new filling of the mineral fertiliser spreader, the **Compare kg counter** function is implemented automatically!

### 4.3.3 Showing the remaining quantity

In the **kg rest (kg, ha, m)** menu, you can query or enter the **residual quantity** left in the hopper.

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

- Fertiliser settings
- Input in the **remaining quantity** input field,
- application rate,
- working width.

kg left	
0 ●	kg
Appl. (kg/ha)	100 ●
Work width (m)	18.00 ●
ha possible	0.0 ●
m possible	0 ●

The diagram shows a terminal window titled 'kg left'. It contains several rows of text and numbers. Callout 1 points to the '0 ●' in the first row. Callout 2 points to the '100 ●' in the second row. Callout 3 points to the '18.00 ●' in the third row. Callout 4 points to the '0.0 ●' in the fourth row. Callout 5 points to the '0 ●' in the fifth row.

**Figure 4.5:** kg rest (kg, ha, m) menu

- [1] Remaining quantity input field
- [2] Application rate (display field from fertiliser settings)
- [3] Working width (display field from fertiliser settings)
- [4] Display of possible area that can be spread with the remaining quantity
- [5] Display of possible distance that can be spread with the remaining quantity

### Entering the remaining quantity when refilling:

1. Call up the **Weighing-Tripcounter > kg rest (kg, ha, m)** menu.
  - ▷ The remaining quantity from the last spreading process appears in the display.
2. Fill the hopper.
3. Enter the new total weight of the fertiliser in the hopper.  
See also chapter [4.12.2: Input of values using the cursor keys, page 82](#).
4. Confirm input by pressing the **Enter key**.
  - ▷ The device calculates the values for the possible spread area and the possible spread distance.

### NOTICE

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

---

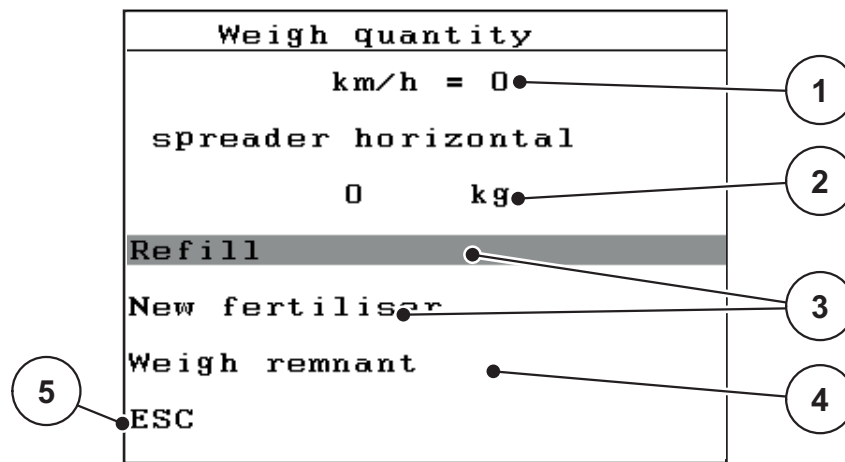
5. Press the **kg** key.
  - ▷ **This returns you to the operating screen.**

### Calling up the remaining quantity during spreading:

During spreading, the remaining quantity is continuously recalculated and displayed. See chapter [5: Spreading operation using the QUANTRON-E2 control unit, page 83](#).

#### 4.3.4 Weigh remnant

In this menu, you can weigh the quantity contained in the hopper and set the parameters for controlling the flow factor.



**Figure 4.6:** Weigh quantity menu

- [1] Display of spreader's forward speed
- [2] Weighed quantity in the hopper
- [3] Filling options
- [4] Weigh remnant (displayed in the **AUTO km/h + Stat. kg** operating mode only)
- [5] Quit

#### NOTICE

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

The menu shows the **remaining quantity** in the hopper. This quantity depends on the following values:

- **Weigh quantity** menu point
- **Machine tare** menu point

#### NOTICE

The **Machine tare** function is only effective when the system is in the **AUTO km/h + AUTO kg** or **AUTO km/h + Stat. kg** operating mode.

When the control unit is delivered with the AXIS W mineral fertiliser spreader, the **AUTO km/h + AUTO kg** operating mode is factory-set.

The following requirements must be met when weighing the quantity:

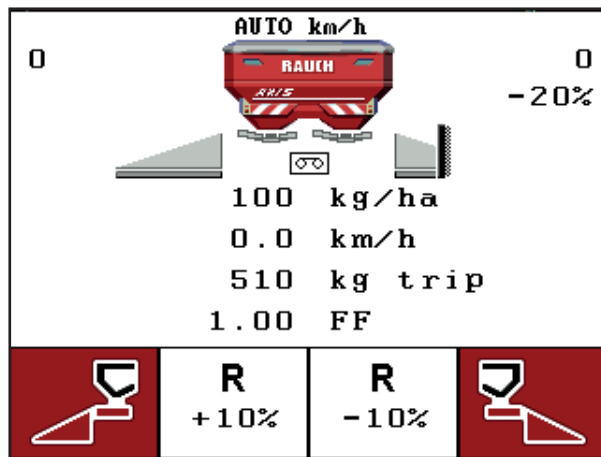
- The machine is at a standstill,
- the PTO shaft is switched off,
- the machine is in a horizontal position and off the ground,
- the tractor is at a standstill,
- the control unit QUANTRON-E2 is ready to operate.

**Weighing the quantity in the hopper:**

1. Fill the hopper.
  - ▷ A window appears in the display which shows the remaining quantity.
2. Highlight the type of filling carried out on the display:
  - **Refill:** Continue spreading with the same fertiliser.
  - **New fertiliser:** Flow factor is set to 1.0 and a new flow factor regulation will follow.
  - **ESC:** Quit
3. Confirm selection by pressing the **Enter key**.
  - ▷ **The operating screen appears on the display. The weighed quantity appears on the display field.**

**NOTICE**

In order to show the remaining quantity on the **operating screen**, the **kg left** display option must be selected ([4.10.2: Display configuration, page 73](#)).



**Figure 4.7:** Operating screen with weighed quantity

### 4.3.5 Machine tare

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

The following requirements must be met when taring the machine:

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

#### **Machine tare:**

1. Call up the **Weighing-Tripcounter > Machine tare** menu.
  2. Press the **Enter key**.
- ▷ **The weighing value for the empty scale is now set to 0kg.**
  - ▷ **The display shows the weighing-trip counter menu.**

#### **NOTICE**

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

---

#### 4.4 Main Menu

Main menu
Fertiliser settings
Hopper configuration
Fast emptying
Field data
System / Test
Info

**Figure 4.8:** Main menu QUANTRON-E2

The main menu shows the following submenus.

Submenu	Meaning	Description
Fertiliser settings	Settings for fertiliser and spreader operation.	<a href="#">page 36</a>
Hopper configuration	Settings for tractor and mineral fertiliser spreader.	<a href="#">page 53</a>
Fast emptying	Direct access to the menu for fast emptying of the fertiliser spreader.	<a href="#">page 63</a>
Field data	Opens the menus for selecting, creating or deleting field data.	<a href="#">page 65</a>
System / Test	Settings and diagnosis of the control unit.	<a href="#">page 70</a>
Info	Display of machine configuration.	<a href="#">page 78</a>



## 4.5 Fertiliser settings in the Easy mode

The mode settings are described in section [4.10.3: Mode, page 74](#).

You can adjust the settings for the fertiliser and spreader operation in this menu.

- Call up the **Main menu > Fertiliser settings** menu.

Fertiliser settings	
1. Fertiliser	
Appl. (kg/ha)	100
Work width (m)	18.00
Flow factor	1.00
Drop point	0.0
Telimat Quantity (%)	-20
Calibration start	

**Figure 4.9:** Fertiliser settings menu, Easy mode

The main menu shows the following submenus.

Submenu	Meaning/Possible values	Description
Fertiliser name	Selected fertiliser.	
Application rate (kg/ha)	Input of target value for the application rate in kg/ha.	<a href="#">page 39</a>
Work width (m)	Determination of the working width to be spread.	<a href="#">page 39</a>
Flow factor	Input of flow factor of the fertiliser used.	<a href="#">page 40</a>
Drop point	Input of the drop point. The display is only for information. <b>For AXIS 50.1 W:</b> electrical drop point adjustment.	Observe the operating instructions for the mineral fertiliser spreader. <a href="#">page 42</a>
TELIMAT Quantity	Pre-setting the quantity reduction for border spread.	Only for mineral fertiliser spreaders with TELIMAT.
Calibration start	Opening the submenu for executing the calibration test.	<a href="#">page 44</a>

### 4.6 Fertiliser settings in the Expert mode

The mode settings are described in section [4.10.3: Mode, page 74](#) .

You can adjust the settings for the fertiliser and spreader operation in this menu. In comparison to the Easy mode, this menu contains further setting pages as well as the fertiliser chart.

- Call up the **Main menu > Fertiliser settings** menu.

Fertiliser settings		1/3
<b>2.Fertiliser</b>		
Appl. (kg/ha)		100
Work width(m)		18.00
Flow factor		1.00
Drop point		1.0
Telimat Quantity	(%)	-20
Calibration start		

Fertiliser settings		2/3
<b>Disc type</b>		
PTO		540
Bound sprdg type	boundary	
Telimat border		
Way to spread		Normal
Height setting		0 / 6

Fertiliser settings		3/3
<b>ABC</b>		
NPK		
Calculate OptiPoint		
Distance in (m)		30.7
Distance out (m)		8.1
GPS Control Info		
Fertiliser chart		

Figure 4.10: Fertiliser settings menu

**NOTICE**

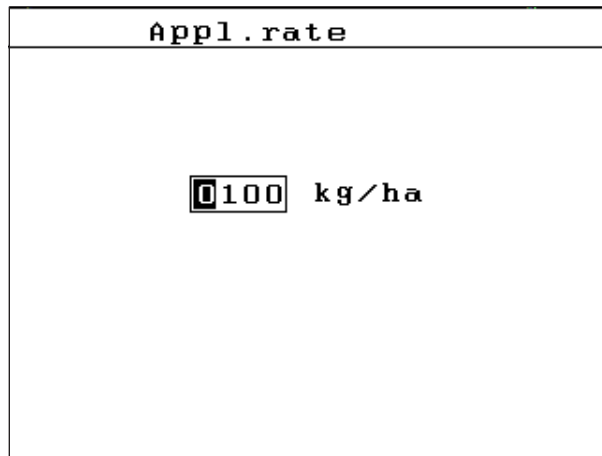
Not all parameters are shown simultaneously in one operating screen. With the **arrow keys**, you can jump to the adjacent operating screen.

Submenu	Meaning/Possible values	Description
Fertiliser name	Fertiliser selected from the fertiliser chart.	<a href="#">page 51</a>
Appl. rate (kg/ha)	Input of target value for the application rate in kg/ha.	<a href="#">page 39</a>
Work width (m)	Determination of the working width to be spread.	<a href="#">page 40</a>
Flow factor	Input of flow factor of the fertiliser used.	<a href="#">page 42</a>
Drop point	Input of the drop point. This display is only for information. <b>For AXIS 50.1 W:</b> electrical drop point adjustment.	Please observe the instruction manual for the machine. <a href="#">page 42</a>
TELIMAT Quantity	Pre-setting the quantity reduction for border spread.	<a href="#">page 43</a>
Calibration start	Opening the submenu for executing the calibration test.	<a href="#">page 44</a>
Disc type	Selection list: <ul style="list-style-type: none"> <li>● S2</li> <li>● S4</li> <li>● S6</li> <li>● S8</li> <li>● S10</li> <li>● S12</li> </ul>	Selection with <b>arrow keys</b> . Confirm by pressing the <b>Enter key</b> .
PTO	Factory setting: 540rpm	
Boundary spreading type	Selection list: <ul style="list-style-type: none"> <li>● Boundary</li> <li>● Border</li> </ul>	Selection with <b>arrow keys</b> . Confirm by pressing the <b>Enter key</b> .
TELIMAT border	Saving the TELIMAT settings for border spreading.	Only for machines with TELIMAT.

Submenu	Meaning/Possible values	Description
Way to spread	Selection list: <ul style="list-style-type: none"> <li>● Normal</li> <li>● Late</li> </ul>	Selection with <b>arrow keys</b> . Confirm by pressing the <b>Enter key</b> .
Height setting	Input in cm Selection list: 0/6 40/40 50/50 60/60 70/70 70/76	
Manufacturer	Input of the fertiliser manufacturer.	
Composition	Percentage content of chemical composition.	
Calculate OptiPoint	Input of the GPS control parameter.	<a href="#">page 48</a>
Distance in (m)	Insert switch-on distance.	<a href="#">page 94</a>
Distance out (m)	Insert switch-off distance.	<a href="#">page 95</a>
GPS Control info	Display of information of the GPS control parameter.	<a href="#">page 50</a>
Fertiliser chart	Management of fertiliser charts.	<a href="#">page 51</a>

### 4.6.1 Application rate

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



**Figure 4.11:** Application rate menu

#### Entering the application rate:

1. Call up the **Fertiliser settings > Application rate (kg/ha)** menu.
  - ▷ The display shows the **currently applied** application rate.
2. Enter the new value in the input field.
  - See chapter [4.12.2: Input of values using the cursor keys, page 82](#).
3. Confirm input by pressing the **Enter key**.
  - ▷ **The new value is saved in the control unit.**

### 4.6.2 Working width

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

1. Call up the **Fertiliser settings > Work width (m)** menu.
  - ▷ The display shows the **currently applied** working width.
2. Enter the new value in the input field.
  - See chapter [4.12.2: Input of values using the cursor keys, page 82](#).
3. Confirm input by pressing the **Enter key**.
  - ▷ **The new value is saved in the control unit.**

### 4.6.3 Flow factor

The flow factor is within the range of **0.4** to **1.9**. The following applies under the same basic conditions (km/h/, working width, kg/ha):

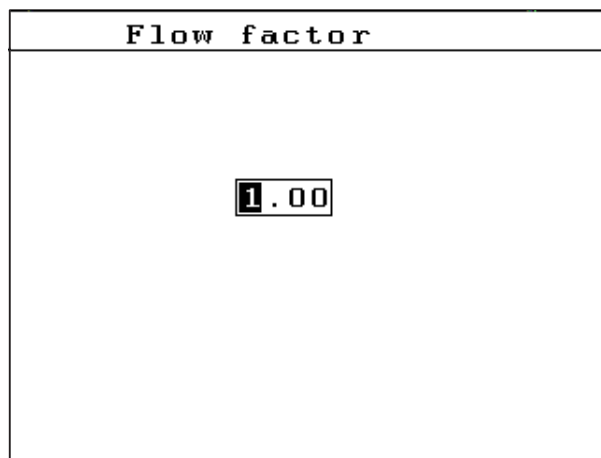
- If the flow factor is **increased**, the application rate **declines**.
- If the flow factor is **reduced**, the application rate is **increased**.

If you know the flow factor from earlier calibrations or from the fertiliser chart, you can enter it **manually** in this menu.

#### NOTICE

Via the **Calibration test** menu, the flow factor can be determined and entered using the QUANTRON-E2. See chapter [4.6.6: Calibration test, page 44](#).

---



**Figure 4.12:** Flow factor menu

With the weighing spreader, the calculation of the flow factor is performed through dynamic weighing. However, the data can also be entered manually.

#### NOTICE

The flow factor calculation depends on the operating mode used. For further information about the flow factor, refer to chapter [4.7.2: AUTO / MAN mode, page 57](#).

---

#### Entering the flow factor:

1. Call up the **Fertiliser settings > Flow factor** menu.
  - ▷ The display shows the **currently applied** flow factor.
2. Enter the new value in the input field.
  - See chapter [4.12.2: Input of values using the cursor keys, page 82](#).

#### NOTICE

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

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

---

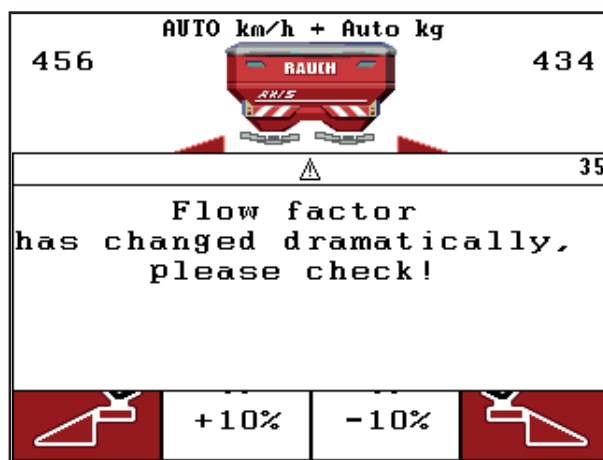
3. Confirm input by pressing the **Enter** key.
- ▷ **The new value is saved in the control unit.**

### NOTICE

For AXIS W (**AUTO km/h + AUTO kg**), we recommend having the flow factor displayed in the operating screen. Thus you can observe the flow factor control during spreading. See chapter [4.10.2: Display configuration, page 73](#) and chapter [4.7.2: AUTO / MAN mode, page 57](#).

#### Resolving problems with the flow factor regulation (only AXIS W):

Under certain conditions, the flow factor can highly deviate despite having implemented the **Weigh quantity** function. The following alarm message appears in the display.



**Figure 4.13:** Flow factor error message

### ▲ CAUTION



#### Possible spreading error

This alarm message can lead to spreading errors which have a negative impact on the environment.

- ▶ **Immediately stop the spreading process.**
- ▶ Remove any clogging at the metering openings.

To rectify the fault, please refer to the chapter [6.2: Clearing a fault/alarm, page 100](#).

### 4.6.4 Drop point

If the QUANTRON-E2 is connected to a **AXIS 50.1 W** mineral fertiliser spreader, the drop point is actuated and adjusted electrically.

#### NOTICE

Entering the drop points for the **AXIS 20.1 W**, **AXIS 30.1 W** or **AXIS 40.1 W** serves informational purposes only and has no effect on the settings at the mineral fertiliser spreader.

---

1. Call up the **Fertiliser settings > Drop point** menu.
  2. Determine the position for the drop point using the fertiliser chart.
  3. Enter the determined value in the input field.  
See chapter [4.12.2: Input of values using the cursor keys, page 82](#).
  4. Press the **Enter** key.
- ▷ **The Fertiliser settings window appears with the new drop point on the display.**

If the drop point is blocked, alarm 17 appears; see chapter [6: Alarm messages and possible causes, page 97](#).

#### ⚠ CAUTION



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

At the **AXIS 50.1 W**, the alarm **Move to drop point** is activated. Upon actuation of the **Start/Stop** key, the drop point is automatically moved to the preset value by means of the electrical actuating cylinder. This can cause injuries and material damage.

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

#### NOTICE

At the **AXIS 50.1 W**, the emergency actuation must not lock the drop point adjustment. Otherwise the setting unit of the drop point can be damaged.

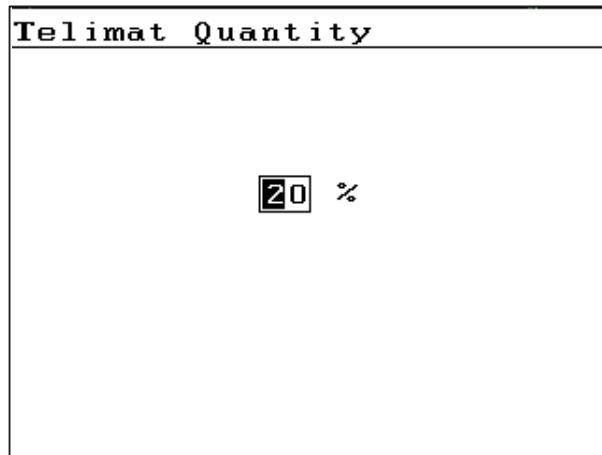
---

If the drop point is blocked, alarm 17 appears; see chapter [6.1: Meaning of alarm messages, page 97](#).



#### 4.6.5 TELIMAT quantity

You can set the TELIMAT quantity reduction (in percent) in this menu. This setting is used for the activation of the border spread function via the TELIMAT sensor or the **T key**.



**Figure 4.14:** TELIMAT Quantity menu

#### **NOTICE**

We recommend reducing the quantity at the border spread by 20 %.

#### **Entering the TELIMAT quantity:**

1. Call up the **Fertiliser settings > TELIMAT Quantity** menu.
  2. Enter the value in the input field.  
See chapter [4.12.2: Input of values using the cursor keys, page 82](#).
  3. Press the **Enter key**.
- ▷ **The Fertiliser settings window appears with the new TELIMAT quantity on the display.**

The **Fertiliser settings** window appears on the display with the new TELIMAT quantity.

4.6.6 Calibration test

**NOTICE**

The **Calibration test** menu is locked for the AXIS 50.1 W and in the **AUTO km/h + AUTO kg** operating mode: This menu point 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 test:

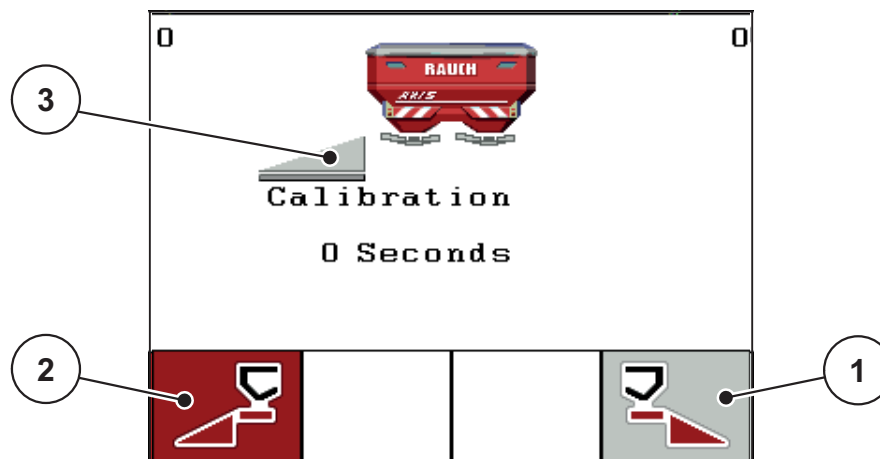
- Before spreading for the first time.
- If the fertiliser quality has changed significantly (moisture, high dust content, cracked grain).
- If a new fertiliser type is used.

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

- Remove both spreading discs.
- Bring drop point in calibration position (AGP 0).

**Entering the working speed:**

1. Call up the **Fertiliser settings > Calibration start** menu.
2. Enter average working speed.  
This value is required for calculating the slide position during the calibration.
3. Confirm input by pressing the **Enter key**.
  - ▷ The new value is saved in the control unit.
  - ▷ The operating screen **Prepare calibration** is shown on the display.



**Figure 4.15:** Prepare calibration operating screen

- [1] Symbol above function key F4 to select right spreading side
- [2] Symbol above function key F1 to select left spreading side
- [3] Display of section

**Selecting the section:**

4. Set the spreading side on which you wish to conduct the calibration.
    - Press the **F1** function key to select **left** spreading side.
    - Press the **F4** function key to select **right** spreading side.
- ▷ **The symbol of the selected spreader side has a red background.**

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

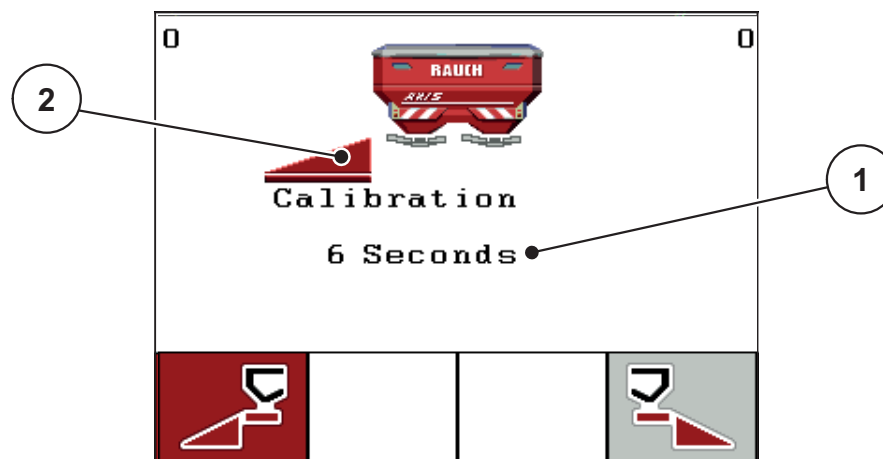
Rotating machine components and ejected fertiliser may cause injury.

- ▶ **Before starting** the calibration, it is to be ensured that all preconditions have been met.
- ▶ Observe the **Calibration** chapter in the instruction manual of the machine.

5. Press the **Start/Stop** key.
  - ▷ The metering slide of the pre-selected section opens and calibration is started.
  - ▷ The operating screen **Conduct calibration** is shown on the display.

**NOTICE**

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



**Figure 4.16:** Run calibration operating screen

- [1] Display of elapsed time since starting the calibration  
 [2] Active section (in this case: left side)

**NOTICE**

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

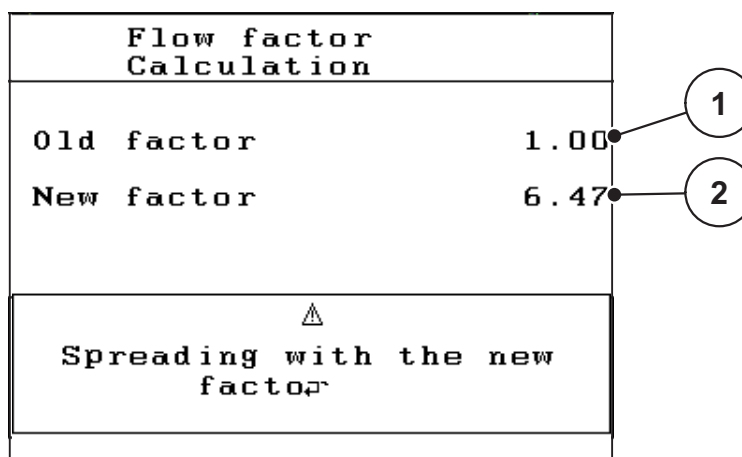
6. Press the **Start/Stop** key once more.
  - ▷ Calibration is finished.
  - ▷ The metering slide is closed.
  - ▷ The display shows the **Input collected weight** menu.

**Recalculating the flow factor****▲ WARNING****Risk of injury due to rotating machine parts**

Contact with rotating machine components (universal drive shaft, hubs) may cause bruises, abrasions and crushing injuries. Body parts or objects may be caught or pulled in.

- ▶ Turn the tractor motor off.
- ▶ Switch off PTO and secure it against unauthorised switching-on.

7. Weigh calibrated quantity (taking into account the empty weight of the collecting vessel).
8. Input collected weight.  
See chapter [4.12.2: Input of values using the cursor keys, page 82](#).
9. Confirm input by pressing the **Enter** key.
  - ▷ The new value is saved in the control unit.
  - ▷ The display shows the **Flow factor calculation** menu.



**Figure 4.17:** Flow factor calculation menu

- [1] Display of previously saved flow factor
- [2] Display of newly calculated flow factor

**NOTICE**

The flow factor must lie between 0.4 and 1.9.

---

**10.** Determine the flow factor.

For taking over the **newly calculated** flow factor, press the **Enter key**.

For confirming the **previously saved** flow factor, press the **ESC key**.

- ▷ **The flow factor is saved.**
- ▷ **The display shows the Fertiliser settings menu.**

## 4.6.7 Calculating OptiPoint

In the **Calculate OptiPoint** menu, enter the parameters for calculating the optimal switch-on/switch-off distances **in the headland**.

1. Call up the **Fertiliser settings > Calculate OptiPoint** menu.
  - ▷ The first page of the **Calculate OptiPoint** menu appears.

**NOTICE**

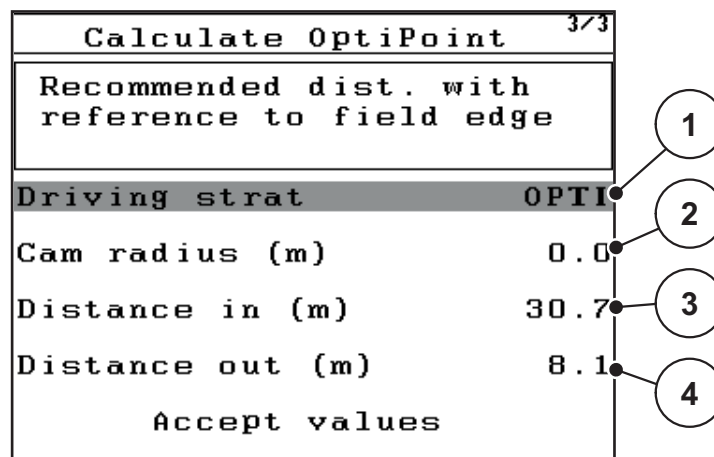
The distance parameter for the fertiliser used can be obtained from the fertiliser chart of your machine.

2. Input range index number from the provided fertiliser chart.
  - Please also refer to [4.12.2: Input of values using the cursor keys, page 82](#).
3. Press the **Enter key**.
  - ▷ The second page of the menu is displayed.

**NOTICE**

The indicated forward speed refers to the forward speed in the area of the switching positions! See chapter [5.7: GPS Control, page 91](#).

4. Input the **Average forward speed** within the range of switching positions.
5. Enter a new value.
6. Confirm input by pressing the **OK key**.
7. Press the **Enter key**.
  - ▷ The third page of the menu is displayed.



**Figure 4.18:** Calculate OptiPoint, page 3



### 4.6.8 GPS Control info

In the **GPS Control Info** menu, information on the calculated settings values in the OptiPoint menu can be obtained.

- The values displayed here are to be taken over **manually** into the respective settings menu of the GPS terminal.

**NOTICE**

This menu is for information purposes only.

- Observe the instruction manual of your GPS terminal.
- 

1. Call up the **Fertiliser settings > GPS Control Info** menu.

GPS Control Info	
Prerequisites for Section Control	
distance x (m)	-13.5
delay on (s)	0.3
delay off (s)	1.3
length (x)	0.0

**Figure 4.19:** GPS Control info menu



## 4.6.9 Fertiliser chart

In these menus you can create and manage **fertiliser charts** in the Expert mode.

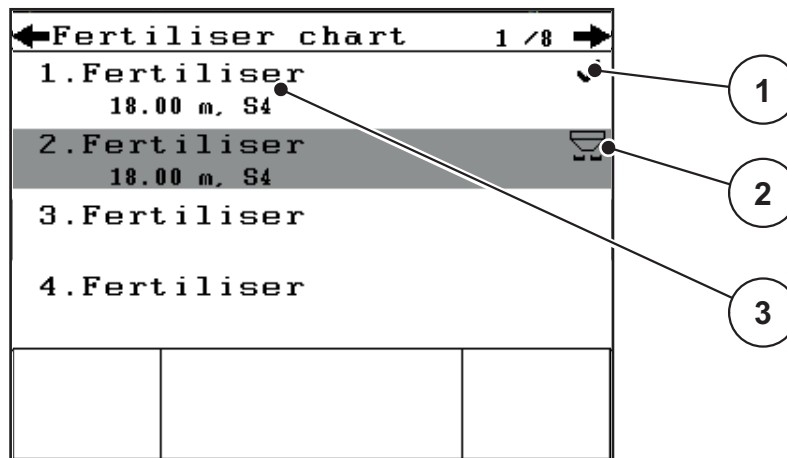
### NOTICE

The selection of a fertiliser chart has an effect on the fertiliser settings, the control unit and the mineral fertiliser spreader. The setting of the application rate remains unaffected.

### Creating a new fertiliser chart

You have the possibility to create up to **30** fertiliser charts in the control unit.

1. Call up the **Fertiliser settings > Fertiliser chart** menu.



**Figure 4.20:** Fertiliser chart menu

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

2. Highlight the **name field** of an empty fertiliser chart.
3. Press the **Enter key**.
  - ▷ The display shows the selection window.
4. Highlight the **Open element...** option.
5. Press the **Enter key**.
  - ▷ The **Fertiliser settings** menu is displayed and the selected element is loaded as **active fertiliser chart** in the fertiliser settings.
6. Highlight the **Fertiliser name** menu entry.
7. Press the **Enter key**.
8. Enter the names for the fertiliser chart.

### NOTICE

We recommend naming the fertiliser chart with the name of the fertiliser. Thus it is easier for you to assign fertilisers to the fertiliser chart.

### 9. Editing the parameters of the **fertiliser chart**.

See chapter [4.6: Fertiliser settings in the Expert mode, page 36](#).

#### **Selecting a fertiliser chart:**

1. Call up the **Fertiliser settings > Fertiliser chart** menu.
2. Highlight the required fertiliser chart.
3. Press the **Enter key**.
  - ▷ The display shows the selection window.
4. Highlight the **Open element...** option.
5. Press the **Enter key**.
  - ▷ **The Fertiliser settings menu is displayed, and the selected element is loaded into the fertiliser settings as active fertiliser chart**

#### **Copying an existing fertiliser chart**

1. Highlight the required fertiliser chart.
2. Press the **Enter key**.
  - ▷ The display shows the selection window.
3. Highlight the **Copy element** option.
4. Press the **Enter key**.
  - ▷ **A copy of the fertiliser chart is now on the first free position of the list.**

#### **Deleting an existing fertiliser chart**

1. Highlight the required fertiliser chart.
2. Press the **Enter key**.
  - ▷ The display shows the selection window.
3. Highlight the **Delete element** option.
4. Press the **Enter key**.
  - ▷ **The fertiliser chart is deleted from the list.**

#### **NOTICE**

The active fertiliser chart **cannot** be deleted.

---

## 4.7 Machine settings

You can adjust the settings for the tractor and machine in this menu.

- **Hopper configuration** menu.

Hopper configuration	
Tractor (km/h)	
AUTO / MAN mode	
+/- appl. rate(%)	10
kg counter cradle	✓

Figure 4.21: Hopper configuration menu

### NOTICE

**kg counter cradle** is displayed in the **AUTO km/h + Stat. kg** and **AUTO km/h + AUTO kg** operating modes only, see chapter [4.7.2: AUTO / MAN mode. page 57](#), and can be activated here.

Submenu	Meaning	Description
Tractor (km/h)	Determining or calibrating the speed signal.	<a href="#">page 54</a>
AUTO / MAN mode	Determining the automatic or manual operating mode.	<a href="#">page 57</a>
+/- appl. rate (%)	Pre-setting the quantity reduction for the different spreading types.	<a href="#">page 61</a>
kg counter cradle	Activating the Compare kg counter function	<a href="#">page 62</a>

4.7.1 Forward speed calibration

The 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 speed calibration:**

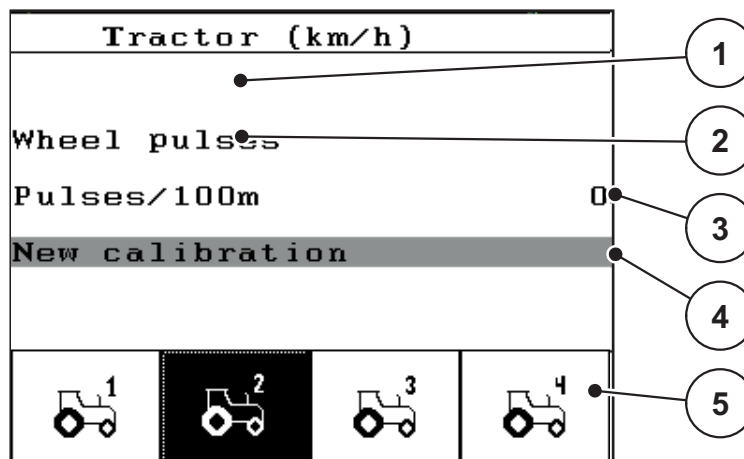
The exact calculation of the number of speed pulses over 100m is very important for the precise discharge of the fertiliser quantity.

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

**Calling up the speed settings:**

In the QUANTRON-E2 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 4.22:** Tractor (km/h) menu

- [1] Tractor type
- [2] Transducer display for the speed signal
- [3] Display of number of pulses over 100m
- [4] Calibrate tractor submenu
- [5] Symbols for saving locations of profiles 1 to 4

1. Call up the **Hopper configuration > Tractor (km/h)** menu.

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

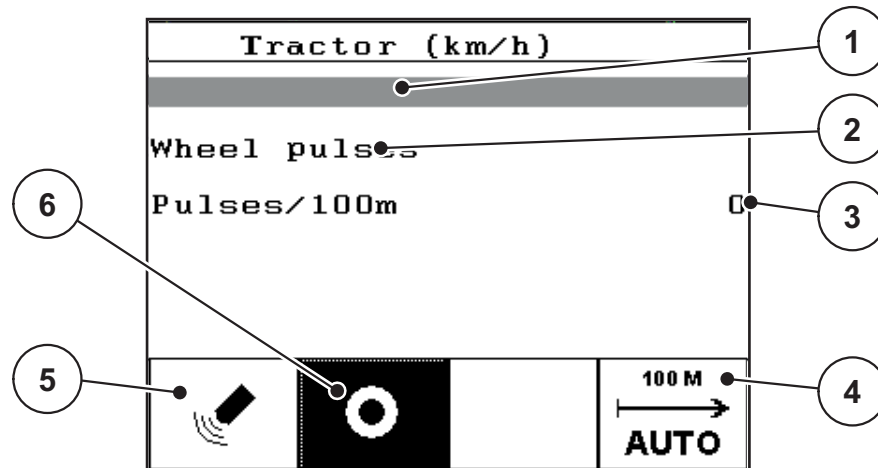
2. Press the function key (**F1-F4**) under the memory location symbol.

**Recalibrating the speed signal:**

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

1. Highlight the desired memory location in the **Tractor (km/h)** menu using the function key below.
2. Highlight the **New calibration** field.
3. Press the **Enter** key.

▷ The display shows the **Tractor (km/h)** calibration menu.



**Figure 4.23:** Tractor (km/h) calibration menu

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

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

**NOTICE**

The input of the name is restricted to **16 characters**.  
 We recommend using the name of the tractor for ease of understanding.

Entering text into the control unit is described in section [4.12.1: Text input, page 80](#).

7. Select the pulse transducer for the forward speed signal.
  - For **Radar pulses** press the **F1** function key.
  - For **Wheel pulses** press the **F2** function key.

▷ The display shows the pulse transducer.

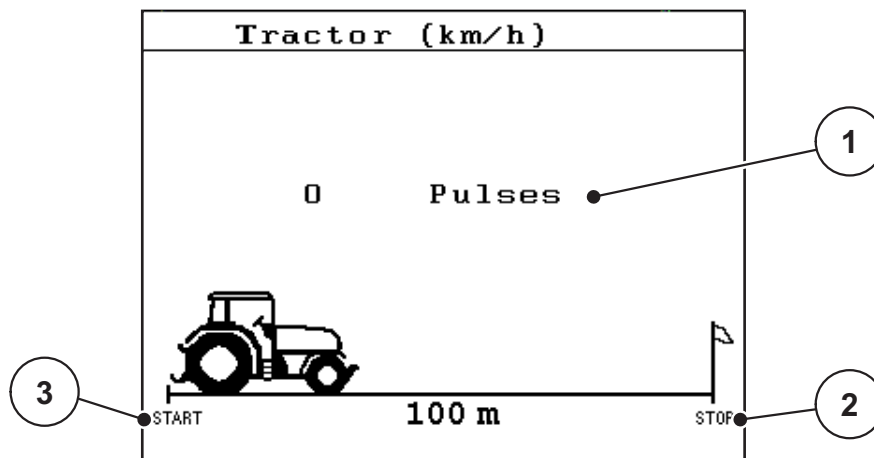
The number of pulses of the speed signal must still be specified below. If you know the exact number of pulses, you can enter it directly:

8. Call up the **Tractor (km/h) > New calibration > Pulses/100m** menu entry.
  - ▷ **The display shows the Pulses menu for the manual input of the pulse count.**

Entering values into the control unit is described in section [4.12.2: Input of values using the cursor keys, page 82](#).

If you do **not know**, the exact number of pulses, you can start the **calibration run**

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



**Figure 4.24:** Calibration run speed signal operating screen

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

10. Press the **F1** function key at the starting position of the reference distance.
  - ▷ The pulse display is now on zero.
  - ▷ The control unit is ready for counting pulses.
11. Drive along the 100m long reference distance.
12. Stop tractor at the end of the reference distance.
13. Press the **F4** function key.
  - ▷ The display shows the number of received pulses.
14. Press the **Enter** key.
  - ▷ **The new pulse count is saved.**
  - ▷ **This returns you to the calibration menu.**

## 4.7.2 AUTO / MAN mode

The default operating mode is **AUTO**. The control unit automatically controls the actuators based on the speed signal.

You will only work in the **manual** mode, if:

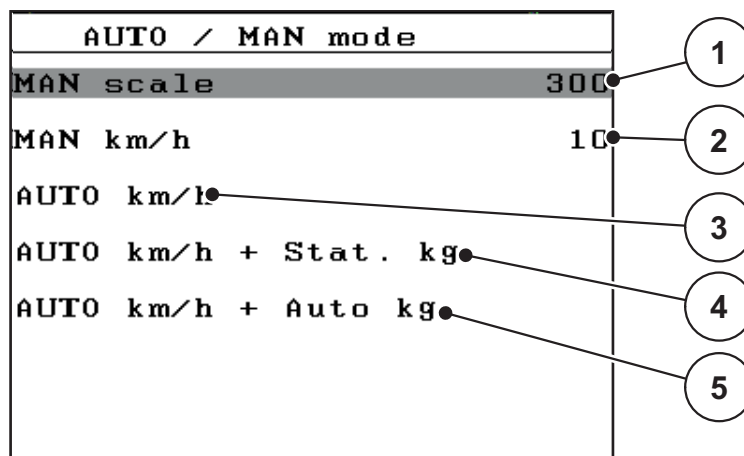
- there is no speed signal (radar or wheel sensor not available or defective),
- application of slug pellets or seeds (fine seeds).

### NOTICE

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

### NOTICE

Spreading work with different operating modes is described in chapter [5: Spreading operation using the QUANTRON-E2 control unit, page 83](#).



**Figure 4.25:** AUTO / MAN mode menu

- [1] Metering slide adjustment for manual mode
- [2] Adjustment of forward speed for manual mode
- [3] Selecting automatic mode
- [4] Selecting automatic mode with static weighing
- [5] Selecting automatic mode with automatic weighing

### Select operating mode.

1. Switch on the QUANTRON-E2 control unit.
2. Call up the **Hopper configuration > AUTO/MAN mode** menu.
3. Highlight the desired menu item.
4. Press the **Enter key**.
5. Follow the instructions on screen.

**NOTICE**

We recommend having the flow factor indicated on the operating screen. Thus you can observe the mass flow control during spreading. See chapter [4.10.2: Display configuration, page 73](#) and chapter [4.7.2: AUTO / MAN mode, page 57](#).

---

- Important information on the use of operating modes for spreading is provided in chapter [5.3: Automatic mode with automatic weighing \(AUTO km/h + AUTO kg\), page 86](#).

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

**a) Selecting AUTOS km/h + AUTO kg:**

1. Switch on the QUANTRON-E2 control unit.
2. Call up the **Hopper configuration > AUTO/MAN mode** menu.
3. Highlight the **AUTO km/h + AUTO kg** menu entry.
4. Press the **Enter key**.
  - ▷ The **Weigh quantity** window appears.
5. **Case a: Refill**
  - ▷ The flow factor setting is retained.
  - ▷ The remaining fertiliser quantity is increased by the refilling quantity.**Case b: new fertiliser**
  - ▷ The flow factor is reset to 1. If necessary, you can enter the required flow factor value later on. See chapter [4.6.3: Flow factor, page 40](#).
6. Highlight the desired type of filling.
7. Press the **Enter key**.
  - ▷ **The control unit switches to the operating screen.**

**▲ CAUTION**



**Incorrect metering by pressing the ESC key**

The **ESC** key must not be pressed. Doing so will result in serious errors in the application rate/metering.

- ▶ Always press the **enter key** to acknowledge the weighing function.
-



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

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

#### NOTICE

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

1. Switch on the QUANTRON-E2 control unit.
  2. Fill the hopper with fertiliser.
  3. Call up the **Hopper configuration > AUTO/MAN mode** menu.
  4. Highlight the **AUTO km/h + Stat. kg.** menu entry.
  5. Press the **Enter key**.
    - ▷ The **Weigh quantity** window appears.
  6. By pressing the **Enter key**, confirm the **New fertiliser** menu entry.
    - ▷ The flow factor is reset to 1.0.
- ▷ **The control unit switches to the operating screen.**

#### ▲ CAUTION



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

At the **AXIS 50.1 W**, the alarm **Move to drop point** is activated. Upon actuation of the **Start/Stop** key, the drop point automatically moves to the preset value by means of the electrical actuating cylinders. This can cause injuries and material damage.

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

#### NOTICE

If the fertiliser settings are modified during driving (e.g. to the field), press the **kg key** and **Weigh quantity** during standstill before starting your spreading work.

### Automatic mode (AUTO km/h)

1. Switch on the QUANTRON-E2 control unit.
  2. Fill the hopper with fertiliser.
  3. Call up the **Hopper configuration > AUTO/MAN mode** menu.
  4. Highlight the **AUTO km/h** menu entry
  5. Press the **Enter key**.
- ▷ **The operating mode setting is saved.**

### Manual operation (MAN km/h)

1. Switch on the QUANTRON-E2 control unit.
  2. Call up the **Hopper configuration > AUTO/MAN mode** menu.
  3. Highlight the **MAN km/h** menu entry
  4. Press the **Enter key**.
    - ▷ The display shows the **Forward speed** selection window.
  5. Enter the value for the forward speed during spreading.
  6. Confirm by pressing the **Enter key**
- ▷ **The operating mode setting is saved.**

### NOTICE

In order to achieve an optimum spreading result, you should carry out a calibration before starting to spread.

---

### Manual operation scale (MAN scale)

1. Call up the **Hopper configuration > AUTO/MAN mode** menu.
  2. Highlight the **MAN scale** menu entry
  3. Press the **Enter key**.
    - ▷ The **Position of dosing slider** menu is displayed.
  4. Enter the scale value for the metering slide opening.
  5. Confirm by pressing the **Enter key**
- ▷ **The operating mode setting is saved.**

### 4.7.3 +/- quantity

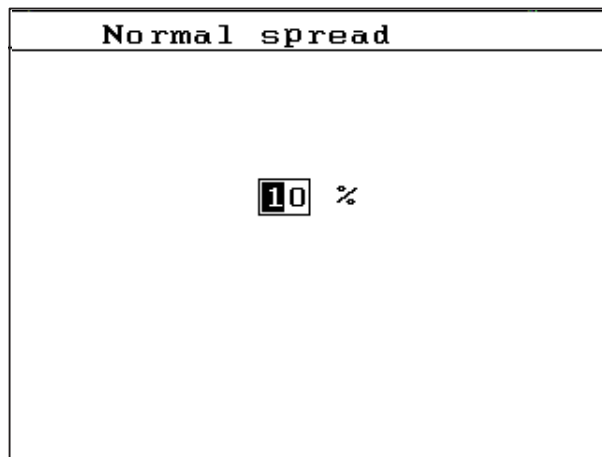
In this menu, you can specify the percentage of **quantity change** for standard spreading.

The basis (100%) is the pre-set value of the metering slide opening.

#### NOTICE

During operation, you can use the **F2/F3** function keys to change the application rate by the factor of **+/- application rate** at any time.

With the **C 100 % key**, the presettings can be restored.



**Figure 4.26:** +/- application rate (%) menu

#### Specifying the quantity reduction:

1. Call up the **Hopper configuration > +/- application rate (%)** menu.
2. Enter the percentage by which you wish to modify the spreading quantity.  
See chapter [4.12.2: Input of values using the cursor keys, page 82](#).
3. Press the **Enter key**.

#### 4.7.4 Kg counter cradle

Here, you can activate the display of the **Adjust kg counter** function in the **Weighing Trip counter** menu.

**NOTICE**

The **Weighing kg counter**, display appears in the **AUTO km/h + Stat. kg** and **AUTO km/h + AUTO kg**. operating modes only. See chapter [4.7.2: AUTO / MAN mode, page 57](#). It can be activated here in the **Hopper configuration** menu!

1. Highlight the **kg counter cradle** submenu.

Hopper configuration	
Tractor (km/h)	
AUTO / MAN mode	
+/- appl. rate (%)	10
kg counter cradle	✓

**Figure 4.27:** Activating/deactivating the kg counter cradle

2. Confirm option by pressing the **Enter key**.
  - ▷ The display shows a tick.
  - ▷ In the **Weighing Trip counter** menu, the **Adjust kg counter** submenu appears.
3. Deactivate the option by pressing the **Enter key**.
  - ▷ The tick disappears.
  - ▷ In the **Weighing Trip counter** menu, the **Adjust kg counter** submenu no longer appears.

## 4.8 Fast emptying

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

Before storing the machine, we recommend **completely opening** the metering slides by fast emptying and switching off the QUANTRON-E2 in this state. Thus you avoid the collection of humidity in the hopper.

### NOTICE

**Before** starting the fast emptying process, it is to be ensured that all preconditions have been met. Please observe the instruction manual for the machine (emptying of remaining quantities).

#### Carrying out the fast emptying:

1. Call up the **Main menu > Fast emptying** menu.

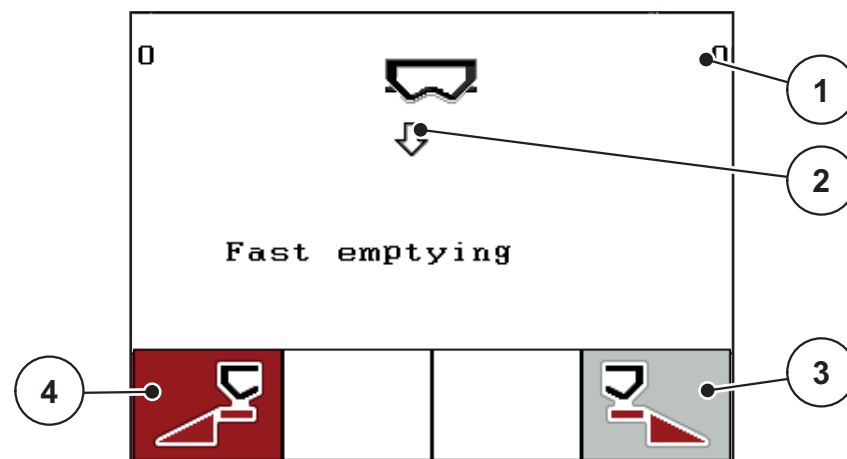
### CAUTION



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

At the **AXIS 50.1 W**, the alarm **Move to drop point** appears. Upon actuation of the **Start/Stop** key, the drop point automatically moves to the preset value by means of the electrical actuating cylinders. This can cause injuries and material damage.

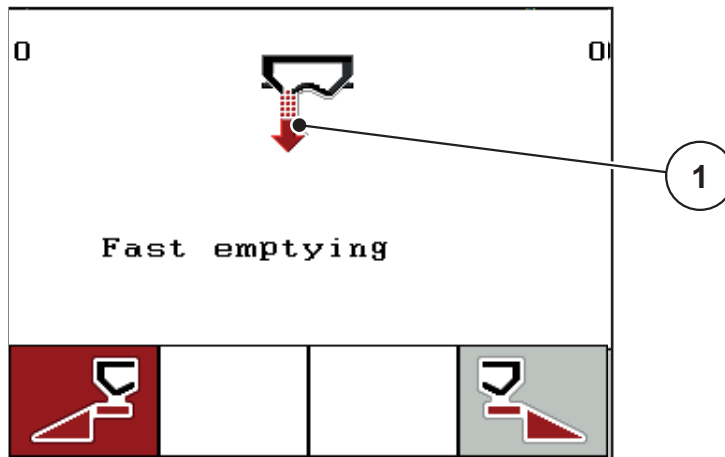
- Before actuating the **Start/Stop** key, ensure that **nobody** is present in the danger zone of the machine.



**Figure 4.28:** Fast emptying menu

- [1] Metering slide opening display
- [2] Symbol for fast emptying (here: left side selected, but not yet started)
- [3] Fast emptying right-hand section (not selected)
- [4] Fast emptying left-hand section (selected)

2. 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.
3. Press the **Start/Stop** key.
  - ▷ The fast emptying starts.



**Figure 4.29:** Fast emptying menu

[1] Fast emptying symbol (in this case: left side selected, fast emptying started)

4. Press the **Start/Stop key** again.  
▷ **The fast emptying is completed.**

**▲ CAUTION**



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

At the **AXIS 50.1 W**, the alarm **Move to drop point** appears. Upon actuation of the **Start/Stop** key, the drop point automatically moves to the preset value by means of the electrical actuating cylinders. This can cause injuries and material damage.

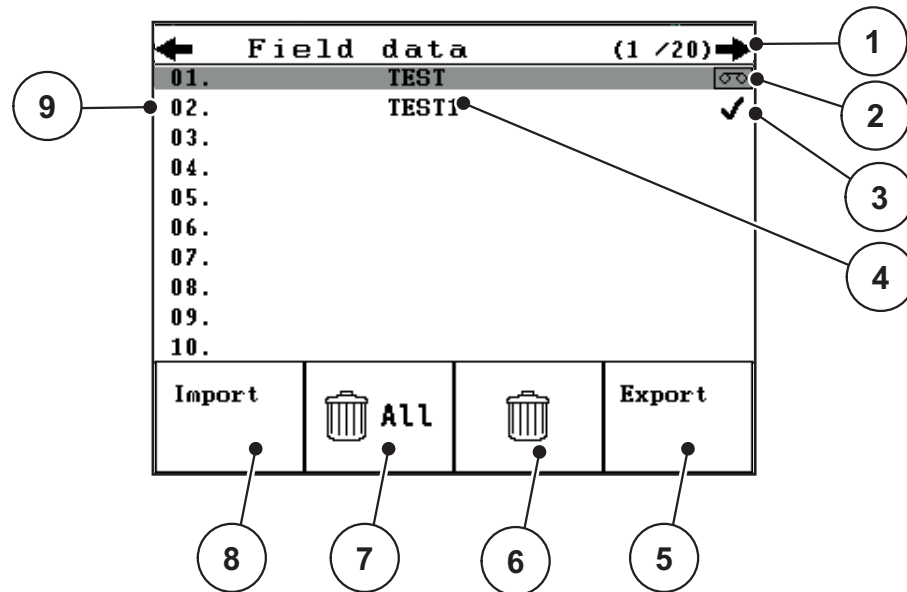
- ▶ Before actuating the **Start/Stop** key, ensure that **nobody** is present in the danger zone of the machine.

5. 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**.

- Call up the **Main Menu > Field data** menu.



**Figure 4.30:** Field data menu

- [1] Display of page number
- [2] Display of active field data
- [3] Display of filled field data
- [4] Name of field data
- [5] F4 function key: Export
- [6] F3 function key: Deleting field file
- [7] F2 function key: Deleting all field data
- [8] F1 function key: Import
- [9] Display of memory location

### 4.9.1 Selecting a field data file

You can re-select a previously saved field data file and proceed with it. The data already saved in the field file are **not overwritten**, but the new values are **added**.

**NOTICE**

With the **left/right arrow key** you can skip forward and back through the pages in the **Field data** menu.

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

4.9.2 Starting recording

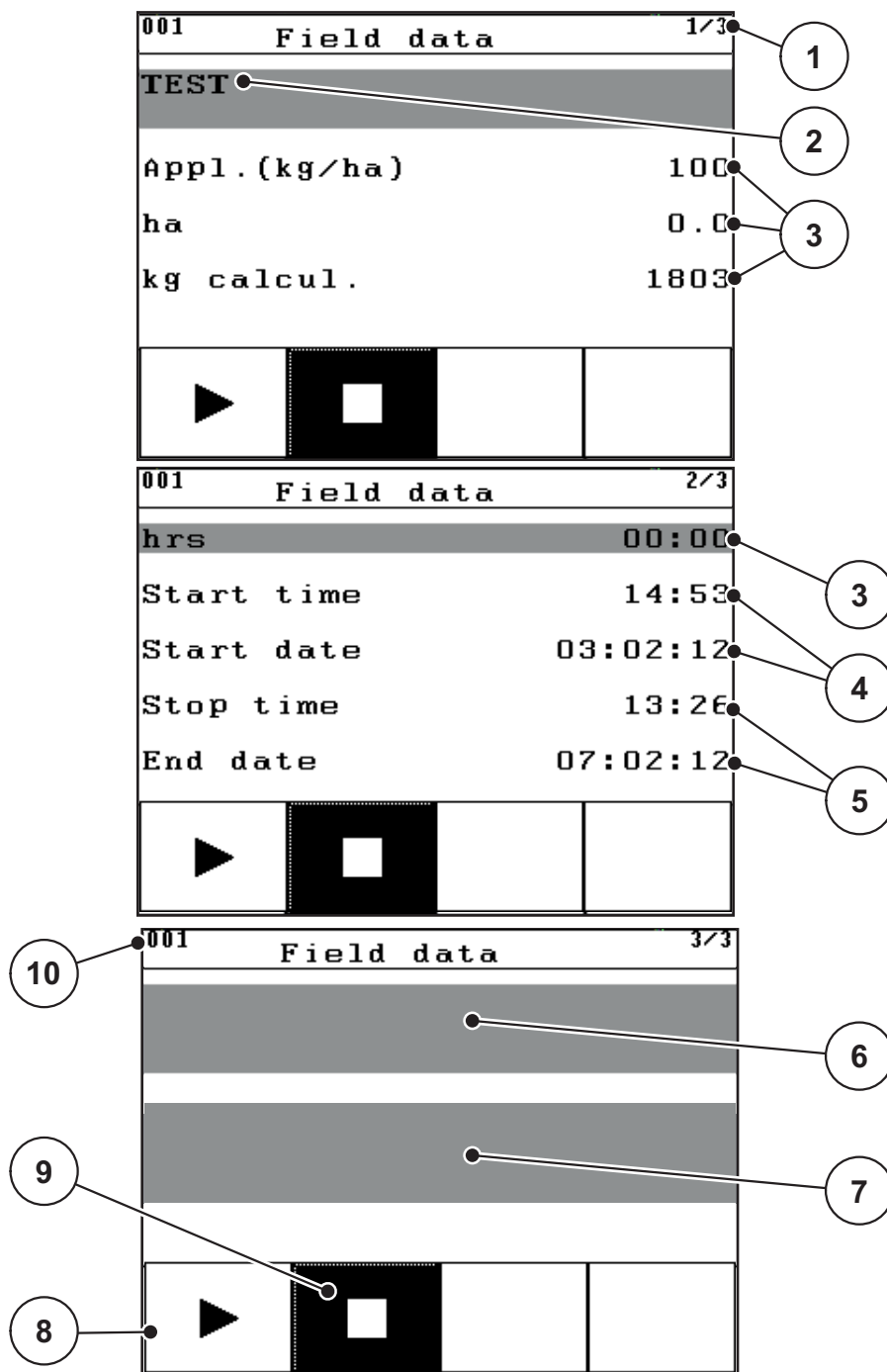


Figure 4.31: Display of current field data

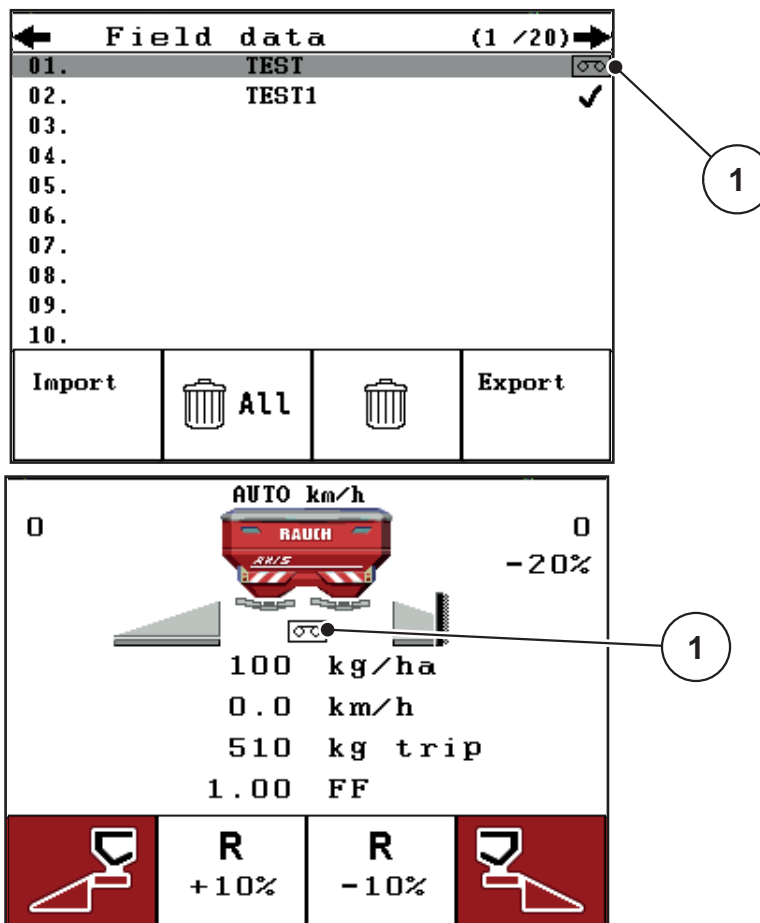
- [1] Display of the page number
- [2] Name field of field data
- [3] Value fields
- [4] Display of the start time/date
- [5] Display of the stop time/date
- [6] Name field of fertiliser
- [7] Name field of fertiliser manufacturer
- [8] Function key Start
- [9] Function key Stop
- [10] Display of memory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



3. 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.
  - ▷ The **operating screen** displays the **recording icon**.

**NOTICE**

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



**Figure 4.32:** Recording symbol display

[1] Recording symbol

### 4.9.3 Stopping recording

1. In the **Field data** menu, Access the page of the active field file.
2. Press the **F2** function key under the stop icon.
  - ▷ Recording is finished.

4.9.4 Importing and exporting field data

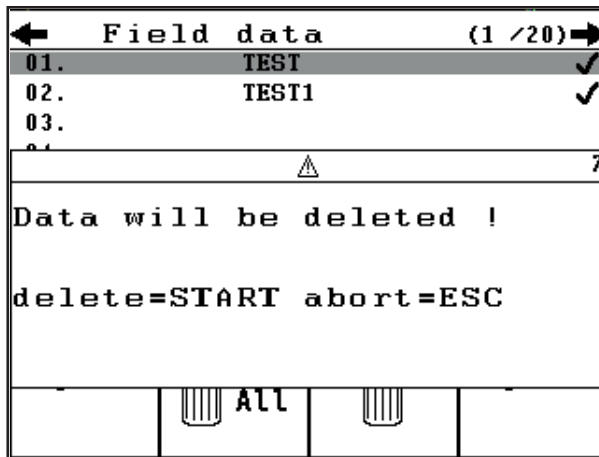
The control unit QUANTRON-E2 allows for importing and/or exporting the recorded field data.

**Importing field data (PC to QUANTRON-E2)**

**Preconditions:**

- Use the USB stick supplied.
- **Do not** alter the directory structure on the USB stick.
  - The data on the USB stick are available in the directory path "\\USB-BOX\QuantronE\Schlagdateien\Import".

1. Call up the **Field data** menu.
2. Press **F1** function key (see [figure 4.30](#)).
  - ▷ A message appears indicating that the current files will be overwritten.



**Figure 4.33:** Message prior to deletion of the files

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

**NOTICE**

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

**The consequences of importing operating data are as follows**

- All field data currently stored in the QUANTRON-E2 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 field data.
- 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 (QUANTRON-E2 to PC)

### Preconditions:

- Use the USB stick supplied.
  - **Do not** alter the directory structure on the USB stick.
    - The data on the USB stick are available in the directory path "\\USB-BOX\QuantronE\Schlagdateien\Export".
1. Call up the **Field data** menu.
  2. Press **F4** function key (see [figure 4.30](#)).

### 4.9.5 Deleting field data

The control unit QUANTRON-E2 allows for deleting the recorded field data.

#### NOTICE

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

#### Deleting field data

1. Call up the **Field data** menu.
2. Select a field file from the list.
3. Press the **F3** function key under the **Delete** icon (see [figure 4.30](#)).
  - ▷ The selected field file has been deleted.

#### Deleting all field data

1. Call up the **Field data** menu.
2. Press the **F2** function key under the **Delete all** icon (see [figure 4.30](#)).
  - ▷ A message appears indicating that all data will be deleted (see [figure 4.33](#)).
3. Press the **Start/Stop** key.
  - ▷ All field data are deleted.

4.10 System / Test

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

- Call up the **Main menu > System / Test** menu.

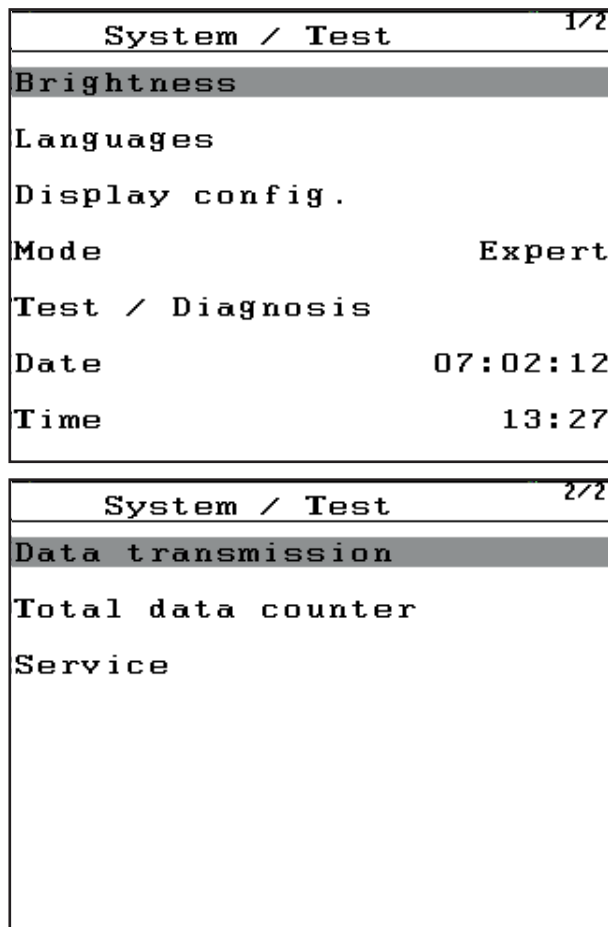


Figure 4.34: System/ Test menu

Submenu	Meaning	Description
Brightness	Setting of the display and of the key lighting.	Settings can be adjusted using the function keys + or -.
Languages	Language setting for the menu navigation	<a href="#">page 72</a>
Display configuration	Determining the displays on the operating screen.	<a href="#">page 73</a>
Mode	Settings of current mode	<a href="#">page 74</a>
Test diagnosis	Check of actuators and sensors	<a href="#">page 75</a>
Date	Setting the current date.	Selection and modification of the settings by means of the <b>arrow keys</b> , confirmation with <b>enter key</b>

Submenu	Meaning	Description
Time	Setting the current time.	Selection and modification of the settings by means of the <b>arrow keys</b> , confirmation with <b>enter key</b>
Data transmission	Menu for data exchange and serial protocols	<a href="#">page 77</a>
Total data counter	Display of the total <ul style="list-style-type: none"> <li>● spread quantity in kg</li> <li>● spread area in ha</li> <li>● spread time in h</li> <li>● distance travelled in km</li> </ul>	
Service	Service settings	Password-protected; only accessible to service personnel

4.10.1 Setting the language

In the QUANTRON-E2 control unit, **various languages** are available. The language package for your country is preloaded at the factory.

1. Call up **System / Test > Languages** menu.

▷ The display shows the first of four pages.

Sprache - Language 1/4		Sprache - Language 2/4	
deutsch	DE	русский	RU
Français	FR	Dansk	DK
English	UK	Polski	PL
Nederlands	NL	Svenska	SV
Italiano	IT	ceřtina	CS
Español	ES	Magyar	HU
Sprache - Language 3/4		Sprache - Language 4/4	
Suomi	FI	HRVATSKI	HR
Norsk	NO	România	RO
Português	PT	УКРАИНСЬКА	UA
Lietuviu	LT	БЪЛГАРСКИ	BG
Latviesu	LV		
EESTI KEELES	EE		

Figure 4.35: Language selection menu

2. Select the language for the menus to be displayed.

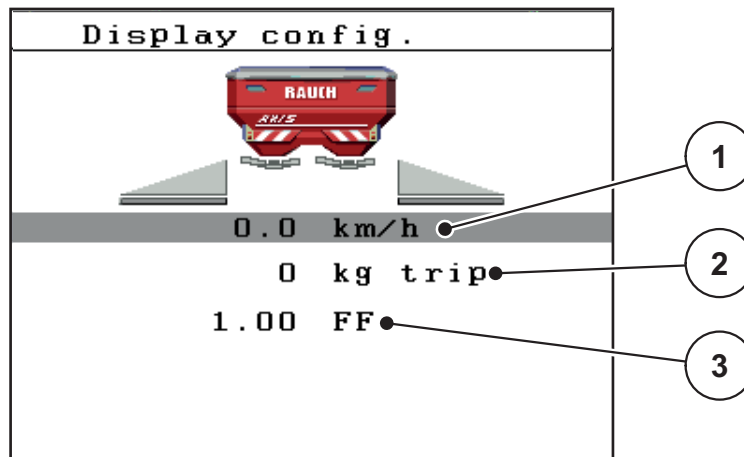
3. Confirm selection by pressing the **Enter key**.

▷ **The control unit QUANTRON-E2 restarts automatically.**

### 4.10.2 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 left
- m left
- ha left



**Figure 4.36:** Display configuration menu

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

#### Select display

1. Call up the **System / Test > Display configuration**.
2. Highlight the appropriate **display field**.
3. Press the **Enter key**.
  - ▷ The possible displays are listed in the display.
4. Highlight the new value which is to be assigned to the display field.
5. Press the **Enter key**.
  - ▷ The display shows the **operating screen**. The new values are now displayed in their appropriate **display field**.

### 4.10.3 Mode

In the QUANTRON-E2 control unit, **2 different modes** are possible.

The **Easy** mode or the **Expert** mode.

- In the **Easy** mode, only the parameters of the fertiliser settings required for spreading can be accessed; it is not possible to create or manage the fertiliser charts.
- In the **Expert** mode, all available parameters can be accessed in the **Fertiliser settings** menu.

#### Selecting a mode

1. Highlight the **Sytem / Test > Mode** menu entry.

System / Test		1/2
Brightness		
Languages		
Display config.		
Mode	Expert	
Test / Diagnosis		
Date	07:02:12	
Time	13:28	

Figure 4.37: Expert mode menu

System / Test		1/2
Brightness		
Languages		
Display config.		
Mode	Easy	
Test / Diagnosis		
Date	07:02:12	
Time	13:28	

Figure 4.38: Easy mode menu

2. Select mode by pressing the **Enter key**.
  - ▷ The display shows the current mode.



#### 4.10.4 Test/Diagnosis

In the **Test/Diagnosis** menu, you can monitor and check the function of some sensors/actuators.

**NOTICE**

This menu is for information purposes only.

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

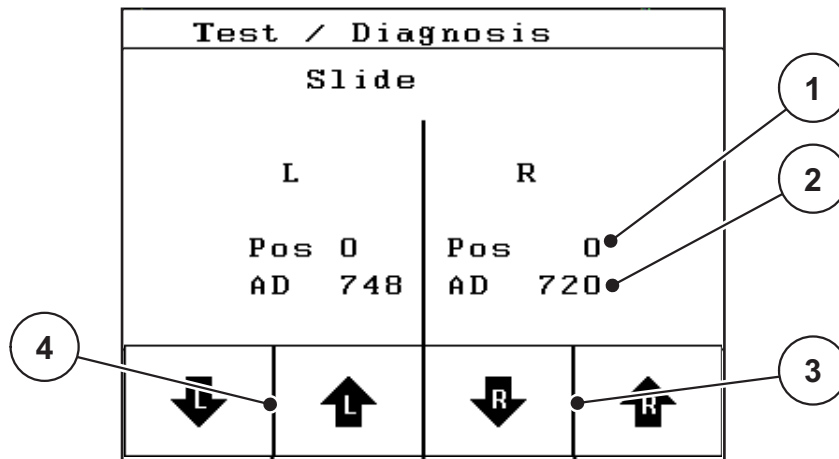
Test / Diagnosis <span style="float: right;">1/2</span>	Test / Diagnosis <span style="float: right;">2/2</span>
<b>Testpoints</b>	<b>Test points drop point</b>
Slide	Drop point
Voltage	Linbus Drop point
Hopp level sensor	Telimat
Weigh cells	Linbus Telimat

**Figure 4.39:** Test/Diagnosis menu

Submenu	Meaning	Description
Test points	Test for approaching the various position points of the slides.	Checking the calibration
Slide	Driving the left and right metering slide	<a href="#">page 76</a>
Voltage	Checking the operating voltage.	
Hopper level sensor	Checking the hopper level sensor.	
Weigh cells	Checking the weigh cells.	
Test points Drop point	Test for approaching the various position points of the drop point.	Checking the calibration
Drop point	Approaching the drop point.	
Linbus Drop point	Checking the drop point actuator.	
TELIMAT	Checking the TELIMAT sensors	
Linbus TELIMAT	Checking the TELIMAT actuator.	

**Example for test/diagnosis of slides**

1. Call up the **System / Test > Test /diagnosis** menu.
2. Highlight the **Slide** menu entry.
3. Press the **Enter** key.
  - ▷ The status of the sensors/actuators is displayed.



**Figure 4.40:** Test/Diagnosis; example: Slide

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

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.

**⚠ CAUTION**



**Risk of injury due to moving machine parts.**

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

- ▶ Ensure that there is no one in the vicinity of the machine before carrying out the tests.

4.10.5 Data transmission

Data transmission is carried out using various data protocols.

Data transmission
ASD
LH5000
TUVR
GPS Control

Figure 4.41: Data transmission menu

Submenu	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 and change of application quantity for specific subareas with an external Trimble Terminal
GPS Control	Protocol for the automatic section control with an external terminal

### 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 travelled in km

#### NOTICE

This menu is for information purposes only.

---

Total data counter	
kg calcul.	102261
ha	0.0
hrs	0
km	0

Figure 4.42: Total data counter menu

### 4.10.7 Service

#### NOTICE

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

---

### 4.11 Info

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

#### NOTICE

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

---

Info		1/2
<b>S/N:</b>	<b>30000</b>	
HW V:	1.3	
SW V:	2.00.00	
Hopp level sensor	✓	
Telimat	Manual	
Actuator	RH03	
Max. scale	580	

Figure 4.43: Info menu page 1

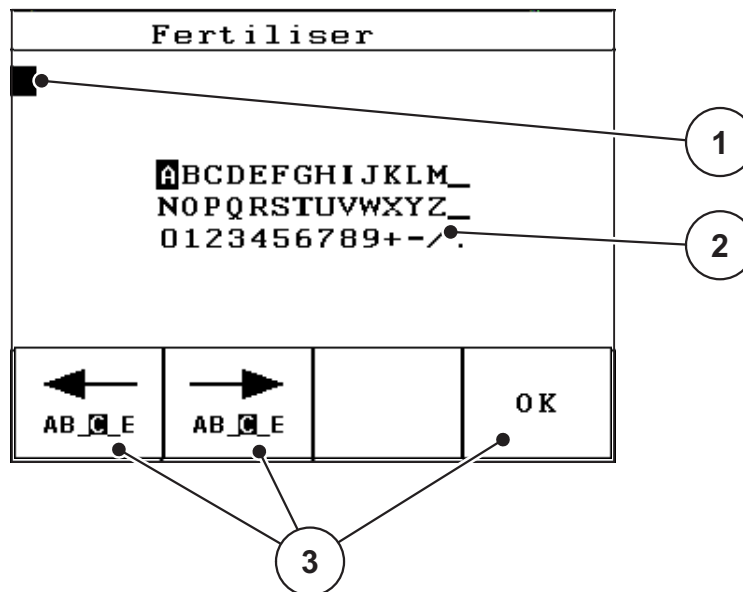
Info		2/2
<b>Weigh cells</b>	<b>✓</b>	
Curve correction	0	
GUI	1.010	

Figure 4.44: Info menu page 2

## 4.12 Special functions

### 4.12.1 Text input

In some menus, you can input freely editable text.



**Figure 4.45:** Text input menu

- [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 higher level 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. To **confirm** your input, press the **OK** function key.
  - ▷ The control unit saves the text.
  - ▷ The display shows the previous selection window.

**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 highlight the character to be written in the character field.
3. Press the **Enter key**.
  - ▷ The character is overwritten.
4. To **confirm** your input, press the **OK** function key.
  - ▷ The text will be stored in 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 two character lines).

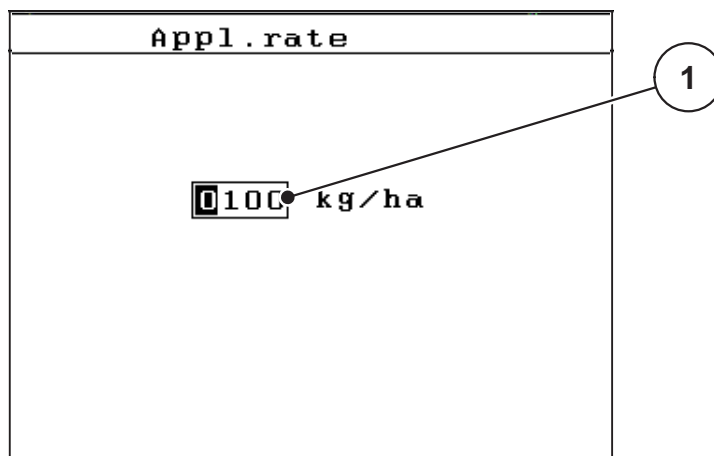
**Deleting an input:**

The complete input can be deleted.

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

### 4.12.2 Input of values using the cursor keys

In some menus, numerical values can be entered.



**Figure 4.46:** Input of numerical value (example application rate)

[1] Input field

#### **Preconditions:**

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 key** 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 using the QUANTRON-E2 control unit

The QUANTRON-E2 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. With these functions, you can control the quality of the fertiliser application.

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

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

**During spreading**, i.e. when the metering slides are open, you can switch to the **Rest (kg, ha, m)** menu and read off the remaining quantity which is currently in the hopper.

#### NOTICE

If you wish to continuously observe the values during the spreading work, you may also assign the freely selectable display fields on the operating screen with **kg rest**, **ha rest** or **m rest** see [4.10.2: Display configuration, page 73](#).

#### Working with the weighed remaining quantity, refilling the hopper:

1. Machine tare:  
See chapter [4.3.5: Machine tare, page 33](#).
2. Select the fertiliser type used.  
See chapter [4.6.9: Fertiliser chart, page 51](#).
3. Fill the hopper.
4. Weigh the fertiliser quantity in the hopper.  
See chapter [4.3.4: Weigh remnant, page 31](#).
5. Start your work.  
If the hopper is empty, refill it.
6. Repeat steps 2 to 5.

#### NOTICE

If the hopper is **empty** and is filled with **less than 200 kg** of fertiliser, the flow factor is fixed and no flow factor control is implemented, see chapter [4.6.3: Flow factor, page 40](#). Change over to the **AUTO km/h** operating mode.

#### NOTICE

If the hopper is filled and **less than 200 kg** fertiliser is refilled, press the **kg key** during standstill, and select the **Refill** function in the **Weigh quantity** menu.

5.2 TELIMAT

Attachment options for the AXIS W mineral fertiliser spreader

**⚠ CAUTION**



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

After having pressed the **T key**, the unit will automatically be moved to the border spreading position by means of actuating cylinders. This can cause injuries and material damage.

- ▶ Before pressing the **T key** you must make sure that no persons are in the danger zone.

**NOTICE**

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

**TELIMAT with hydraulic remote control**

The TELIMAT is hydraulically moved to its working or idle position. The TELIMAT can be activated or deactivated by pressing the **T 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 as soon as the TELIMAT has been hydraulically brought to operating position. If the TELIMAT is moved back to the idle position, the **TELIMAT icon** is hidden. The sensors monitor the TELIMAT adjustment and activate or deactivate the TELIMAT automatically. The **T key** has no function for this option.

If the status of the TELIMAT unit cannot be verified for more than 5 seconds, the alarm message 14 will be displayed; see chapter [6.1: Meaning of alarm messages, page 97](#).

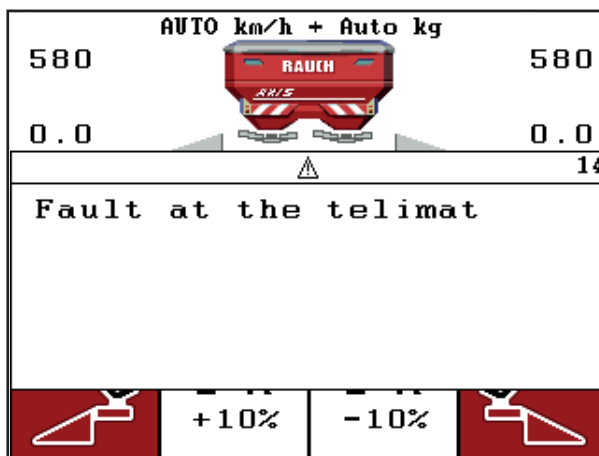


Figure 5.1: Display of TELIMAT alarm message

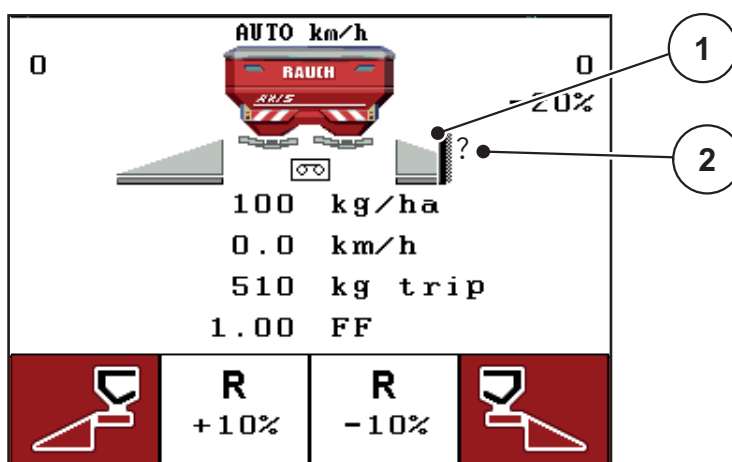
### TELIMAT with electrical remote control

By pressing the **T** key, the electrical TELIMAT moves into the border spreading position. During the setting, a **? icon** is displayed on the operating unit, which disappears once the working position has been reached. A sensor monitoring of the TELIMAT position is not required, since the actuator was calibrated at the factory.

In the event of blockages of the TELIMAT, alarm 23 appears; see chapter [6.1: Meaning of alarm messages, page 97](#).

#### NOTICE

The TELIMAT symbol shown in the display is the same for each of the different TELIMAT options!



**Figure 5.2:** TELIMAT display

- [1] TELIMAT icon
- [2] TELIMAT not yet in working position icon

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

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

#### NOTICE

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

With the **AXIS W** setting, the **AUTO km/h + AUTO kg** operating mode pre-set at the factory is selected by default.

---

#### Preconditions for spreading:

- The **AUTO km/h + AUTO kg** operating mode must be active (see [4.7.2: AUTO / MAN mode, page 57](#)).
1. Switch on the QUANTRON-E2 control unit.

#### NOTICE

When you fill in a fertiliser quantity of less than 200 kg into an empty hopper, you will change to the **AUTO km/h + Stat. kg** or **AUTO km/h** mode.

---

2. Fill the hopper with fertiliser.
    - ▷ The **Weigh quantity** window appears on the display.
  3. Weigh fertiliser quantity via **Refill** or **New fertiliser**.
    - See chapter [4.3.4: Weigh remnant, page 31](#).
    - **Refill:**
      - Continue spreading with the same fertiliser.
      - The flow factor setting is retained.
      - The remaining fertiliser quantity is increased by the refilling quantity.
    - **New fertiliser:** Flow factor is set to 1.0; a new flow factor control will follow.
- ▷ **The remaining fertiliser quantity is increased by the refilling quantity.**

#### ⚠ CAUTION



#### Incorrect metering by pressing the ESC key

The ESC key must not be pressed. Doing so will result in serious errors in the application rate/metering.

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

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

**NOTICE**

On uneven, hilly terrain, the application rate of less than 30kg/min should be spread in the **AUTO km/h + Stat. kg** (weighing spreader) or **AUTO km/h** (other mineral fertiliser spreader) operating mode.

**NOTICE**

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

**NOTICE**

If the fertiliser settings are modified during driving (e.g. to the field), before starting your spreading work, press the **kg key** and select the **New fertiliser** function in the **Weigh quantity** menu during standstill.

**NOTICE**

We recommend that the flow factor be displayed in the operating screen (see [4.10.2: Display configuration, page 73](#)) in order to watch the flow factor regulation while spreading.

**NOTICE**

If problems occur with the flow factor control behaviour (clogging, ...), use the **kg key** to change over to the **Weigh quantity** menu during standstill, and call up the **New fertiliser** function.

### 5.4 Spreading with AUTO km/h + Stat. kg operating mode

Use the **AUTO km/h + Stat. kg** operating mode for smaller spreading volumes or for working in hillside situations **ONLY**.

1. Switch on the QUANTRON-E2.
2. Press the **kg key**.
3. Access the **Weigh quantity** menu.
4. Weigh fertiliser quantity via **Refill** or **New fertiliser**.  
See chapter [4.3.4: Weigh remnant, page 31](#).
5. Press the **Enter key**.
6. Carry out fertiliser settings:
  - Application rate (kg/ha)
  - Working width (m)
7. Fill in the fertiliser
  - ▷ The **Weigh quantity** window appears on the display.
8. Highlight accomplished action on the display:
  - Refill:** Continue spreading with the same fertiliser. All saved values (flow factor) are retained.
  - New fertiliser:** Flow factor is reset to 1.0. If necessary, you can enter the required flow factor value later on.
  - ESC:** Quit
9. Press the **Enter key**.
10. Determine flow factor from the provided fertiliser chart or according to empirical values.
11. Input flow factor manually.
12. Press the **Start/Stop** key.
  - ▷ The spreading starts.
13. After at least 150kg of fertiliser have been applied, press the **Start/Stop** key.
14. Stop the tractor on a plain surface.
  - The machine must be horizontal.

15. Access the **Weigh quantity** menu via the **kg** key.
16. Highlight the **Weigh remnant** selection field.
17. Press the **Enter key**.
  - ▷ The software compares the applied quantity with the actual remaining amount in the hopper.
  - ▷ The software calculates the new flow factor.
18. Determine the flow factor.
  - Press the **Enter key** in order to adopt the **newly calculated** flow factor.
  - Press the **ESC key** in order to adopt the **previously saved** flow factor.

#### NOTICE

If you have made changes to the fertiliser settings during driving (e.g. to the field) you must press the **kg** key and **Weigh quantity** during standstill before starting your spreading work.

## 5.5 Spreading with AUTO km/h operating mode

1. Carry out fertiliser settings:
  - Application rate (kg/ha)
  - Working width (m)
2. Fill in the fertiliser

#### 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.

3. Conducting calibration for flow factor determination.
  - or
  - Obtain the flow factor from the fertiliser chart.
4. Input flow factor manually.
5. Press the **Start/Stop** key.
- ▷ **The spreading starts.**

## 5.6 Spreading in the MAN scale operating mode

In the **MAN scale** operating mode, you can manually change the metering slide openings during the spreading operation.

### Preconditions:

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

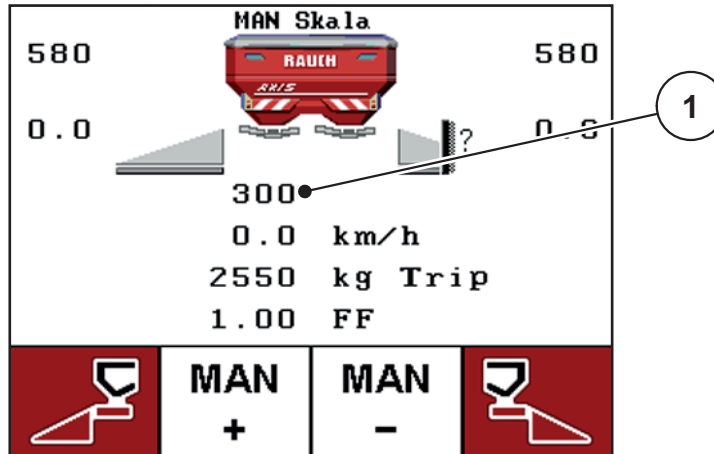


Figure 5.3: MAN scale operating screen

[1] Display of current scale position metering slide

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

### NOTICE

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



## 5.7 GPS Control

The QUANTRON-E2 control unit can be combined with GPS-compatible devices. Data are exchanged between both devices in order to automate the switching.

### NOTICE

We recommend using our QUANTRON-Guide control unit in combination with QUANTRON-E2.

- Please contact your distributor for further information.
- Observe the instruction manual for QUANTRON-Guide.

The **OptiPoint** function by RAUCH calculates the optimal switching-on and switching-off point for spreading in the headline on the basis of the settings in the control unit; see [4.6.7: Calculating OptiPoint, page 48](#).

### NOTICE

For using the GPS Control functions of QUANTRON-E2, the serial communication must be activated via the **GPS Control** submenu point in the **System / Test > Data transmission** menu.

### OPTI driving strategy

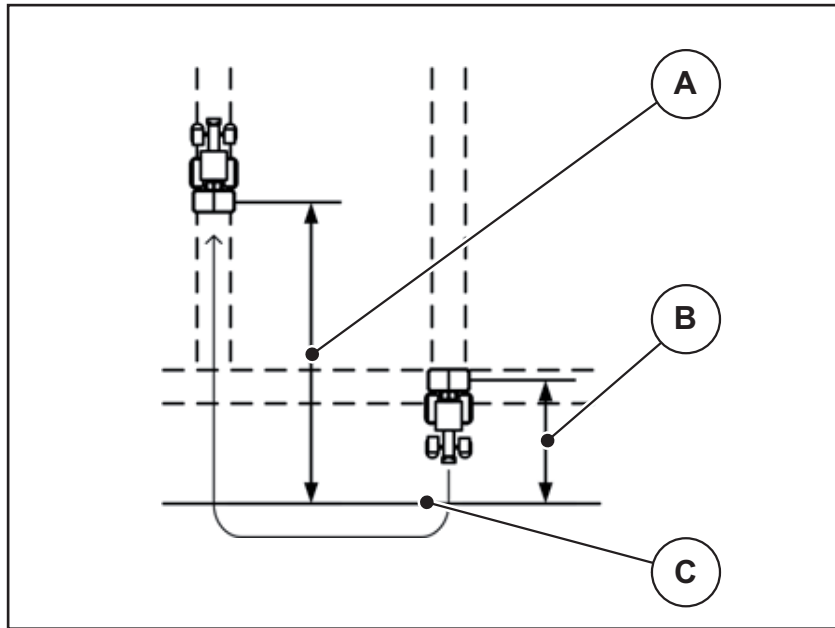
The **Driving strategy** refers to the position of the switch-off distance as regards the headland tramlines. Depending on the type of fertiliser, the ideal switch-off distance ([figure 5.4, \[B\]](#)) may be close to the field border ([figure 5.4, \[C\]](#)).

In such case, it is no longer possible to turn into the tramline with the tractor and to enter the subsequent field tramline. The turning procedure must be executed between the headland tramline and the field border, or outside of the field. The fertiliser distribution in the field is ideal.

### NOTICE

For the **first** calculation of **OptiPoint**, select the **OPTI** driving strategy.

- If you want to adapt the switch-off distance in accordance with the desired fertiliser distribution, change over to the **GEOM** driving strategy.



**Figure 5.4:** OPTI driving strategy

- [A] Switch-on distance
- [B] Switch-off distance
- [C] Field border

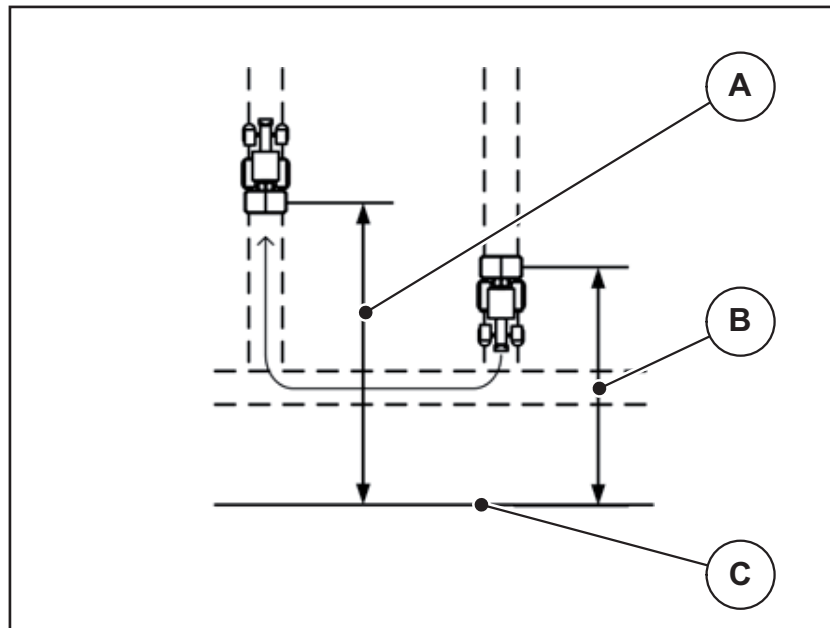
**GEOM driving strategy**

If it is required to turn into the headland tramline, the switch-off distance (figure 5.5, [B]) is to be increased.

The switch-off distance is recalculated depending on the **cam radius**. In accordance with the input value, the switch-off distance increases.

In such case, the fertiliser distribution in the area of the headland is no longer ideal since the metering slides close too early.

Hence, there might be a nutrient undersupply in the area of the switch-off position when applying the **GEOM driving strategy**.

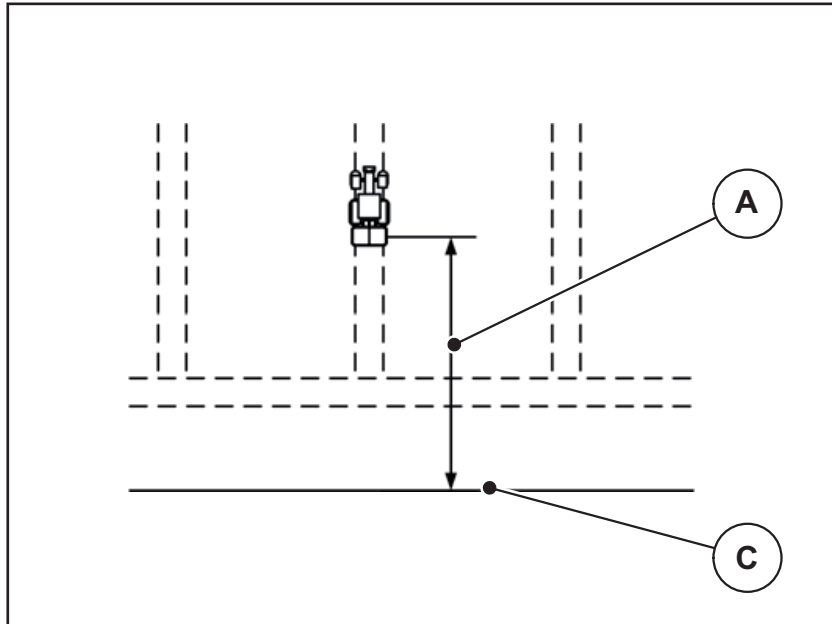


**Figure 5.5:** GEOM driving strategy

- [A] Switch-on distance
- [B] Switch-off distance
- [C] Field border

### Distance on (m)

**Distance on** refers to the switch-on distance (figure 5.6 [A]) relating to the field border (figure 5.6 [C]). At this position in the field, the metering slides start to open. This distance depends on the type of fertiliser and represents the ideal switch-on distance for an optimized fertiliser distribution.



**Figure 5.6:** Distance on (relating to field border)

[A] Switch-on distance

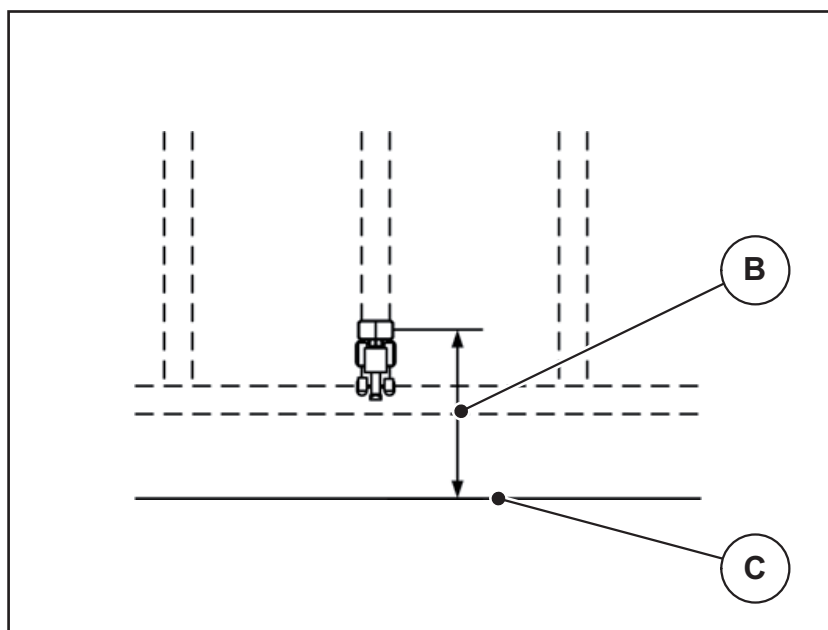
[C] field border

The selection of the **driving strategy** does not affect the value of the switch-on distance. If you want to change the switching-on position in the field, you must adjust the **Distance on**.

- A lower distance value 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 centre of the field.

**Distance off (m)**

**Distance out** refers to the switch-off distance (figure 5.7 [B]) relating to the field border (figure 5.7 [C]). At this position in the field, the metering slides start to close. The switch-off distance depends on the **driving strategy** selected.



**Figure 5.7:** Distance off (relating to field border)

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

In the case of the **OPTI driving strategy**, the optimal switch-off distance is calculated depending on the type of fertiliser in order to guarantee an optimized fertiliser distribution in the field.

The **GEOM driving strategy** relocates the switch-off distance so that it is possible to turn in the headland tramline and to drive into the next tramlines.

The value is calculated taking into consideration the provided **cam radius** of the tractor. Since, with the **GEOM driving strategy**, the switch-off distance is usually greater than with the **OPTI driving strategy**, in the area of the switch-off positions in the field, a nutrient undersupply is to be expected.

If you want to change the switching-off position in the field, you must adjust the **Distance off**.

- 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 centre of the field.



## 6 Alarm messages and possible causes

Various alarm messages can be displayed on the QUANTRON-E2 control unit display.

### 6.1 Meaning of alarm messages

No.	Message in display	Meaning <ul style="list-style-type: none"> <li>● Possible cause</li> </ul>
1	Fault in metering system, stop!	The actuator for the metering system cannot reach the set value it is to be moved to. <ul style="list-style-type: none"> <li>● Blockade</li> <li>● No position message</li> </ul>
2	Max. outlet reached! Speed or application rate too high.	Metering slide alarm <ul style="list-style-type: none"> <li>● The maximum metering opening is reached.</li> <li>● The set application rate (+/- appl. rate) exceeds the maximum metering opening.</li> </ul>
3	Flow factor is outside limits	The flow factor must lie within a range between <b>0.40 - 1.90</b> <ul style="list-style-type: none"> <li>● The newly calculated or entered flow factor is outside this range</li> </ul>
4	Hopper left empty!	The level sensor on the left reports "empty". <ul style="list-style-type: none"> <li>● The left-hand hopper is empty.</li> </ul>
5	Hopper right empty!	The level sensor on the right reports "empty". <ul style="list-style-type: none"> <li>● The right-hand hopper is empty.</li> </ul>
7	Data will be deleted! Delete = START Cancel = ESC	Safety alarm, to prevent the unintentional deletion of data.
8	Min. quantity of 150 kg not achieved, old factor valid	Flow factor calculation not possible. <ul style="list-style-type: none"> <li>● The <b>AUTO km/h + Stat. kg</b> operating mode is selected.</li> <li>● The application rate is too low to calculate the new flow factor when the remaining quantity is weighed.</li> <li>● The old flow factor is retained.</li> </ul>
9	Min. setting = 10 Max setting. = 3000	Reference to the value range of the <b>Appl.rate</b> <ul style="list-style-type: none"> <li>● Entered value is not permitted.</li> </ul>

No.	Message in display	<b>Meaning</b> <ul style="list-style-type: none"> <li>● <b>Possible cause</b></li> </ul>
10	Min. setting = 12.00 Max setting. = 50.00	Reference to the value range of the <b>Working width</b> . <ul style="list-style-type: none"><li>● Entered value is not permitted.</li></ul>
11	Min. setting = 0.40 Max setting. = 1.90	Reference to the value range of the <b>flow factor</b> . <ul style="list-style-type: none"><li>● Entered value is not permitted.</li></ul>
12	Transmission fault. No RS232 connection	An error has occurred during data transmission to the control unit. The data have not been transmitted.
14	Fault at the TELIMAT equipment	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, necessary to delete a private fertiliser chart	A maximum of 30 fertiliser charts can be saved. <ul style="list-style-type: none"><li>● No additional saving possible.</li></ul>
16	Approach drop point Yes = Start	<b>Only for AXIS 50.1 W:</b> Safety request before drop point is approached automatically. <ul style="list-style-type: none"><li>● Drop point can be set in the <b>Fertiliser settings</b> menu.</li><li>● Fast emptying.</li></ul>
17	Error by setting drop point	The actuator for the drop point setting cannot reach the set value it is to be moved to. <ul style="list-style-type: none"><li>● Blockade.</li><li>● No position message.</li></ul>
18	Error by setting drop point	Actuator overloaded.
19	Defect by setting drop point	Actuator defective.
20	Error at LIN bus participant:	Communication problem. <ul style="list-style-type: none"><li>● Remove actuator.</li><li>● Cable breakage.</li></ul>
21	Spreader overloaded!	The mineral fertiliser spreader is overloaded. <ul style="list-style-type: none"><li>● Too much fertiliser in the hopper</li></ul>
23	Error by setting TELIMAT	The actuator for the TELIMAT setting cannot reach the set value it is to be moved to. <ul style="list-style-type: none"><li>● Blockade.</li><li>● No position message.</li></ul>
24	Error by setting TELIMAT	Actuator overloaded.

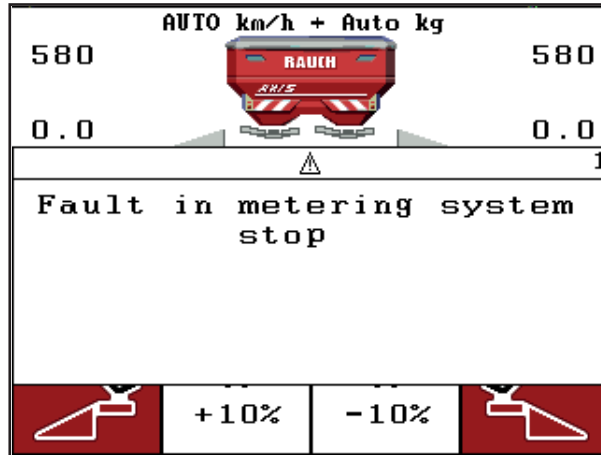


No.	Message in display	Meaning ● Possible cause
25	Error by setting TELIMAT	Defective TELIMAT actuator.
35	Flow factor has changed dramatically, please check!	The flow factor must lie within a range between <b>0.50 - 1.80</b> ● The newly calculated or entered flow factor is outside this range
36	Weighing quantity impossible. Machine must stop.	Alarm message during weighing. ● The <b>Weigh quantity</b> function can only be carried out if the machine is at a standstill and in a horizontal position.

### 6.2 Clearing a fault/alarm

#### 6.2.1 Confirming an alarm message

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



**Figure 6.1:** Alarm message (e.g. metering device)

1. Correct the cause for the alarm message.  
Observe the instruction manual of the machine and section [6.1: Meaning of alarm messages. page 97.](#)
2. Press **C/100 %** key.  
▷ **The alarm message is cleared.**

## 6.2.2 Resolving problems with the flow factor regulation (only AXIS W)

Under certain conditions, the flow factor can deviate greatly despite having implemented the **Weigh quantity** function. The following alarm message appears in the display.

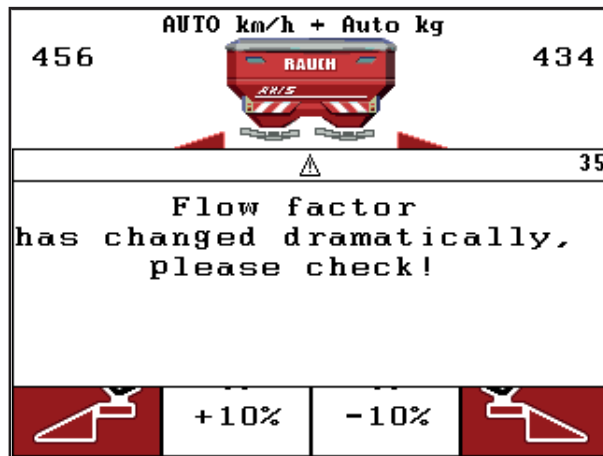


Figure 6.2: Flow factor error message

### ⚠ CAUTION



#### Possible spreading error

This alarm message can lead to spreading errors which have a negative impact on the environment.





- ▶ Immediately stop the **spreading process**.
- ▶ Remove any clogging at the metering openings.



#### Acknowledging an alarm message:

1. Acknowledge the alarm as described in chapter [6.2.1: Confirming an alarm message, page 100](#).
2. Switch off the QUANTRON-E2 operating unit (**ON/OFF**).
3. Remove any clogging of the metering openings.
4. Activating the QUANTRON-E2 control unit
5. Access the **Weigh quantity** menu via the **kg** key.
6. Select the **New fertiliser** function.
7. Press the **Enter** key.
- ▷ **The flow factor has been set to 1.0 and the control unit weighs the residual quantity in the hopper.**
8. Change over to the **operating screen**.
  - ▷ The display shows the weighed quantity in the display field.
  - ▷ The fault has been rectified.
9. Continue the spreading operation.
- ▷ **A new flow factor regulation is carried out.**



## 7 Options

No.	Illustration	Designation
1		Empty message sensor for AXIS
2		Forward speed sensor
3		Y cable RS232 for data exchange (e.g. GPS, N sensor, etc.)
4		System tractor cable set for QUANTRON-E2 AXIS 12 m

No.	Illustration	Designation
5	 <p>The illustration shows a white rectangular GPS receiver unit with the brand name 'AccoSat' and a website 'www.msa-technik.de' printed on it. A black cable is connected to the unit and is coiled around it.</p>	GPS cable and receiver
6	 <p>The illustration shows a black cable with a blue connector at one end and a black connector at the other. There are two white labels on the cable, one of which has the number '2' on it.</p>	TELIMAT sensor AXIS

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## Terms/conditions of warranty

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

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

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



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