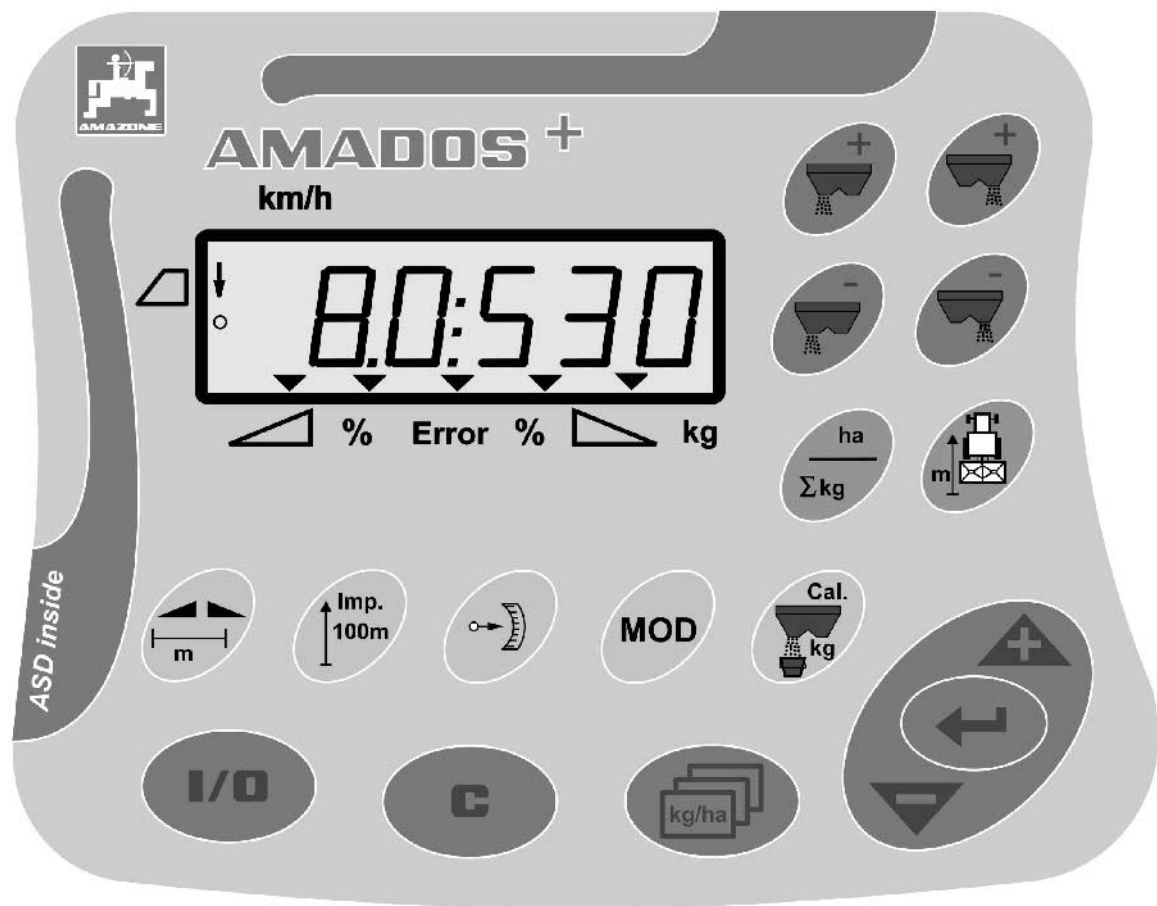


# Operating Manual

## AMAZONE

### AMADOS<sup>+</sup>

On-Board Computer for Fertiliser Spreader **ZA-M**



MG3215  
BAG0058.2 05.09  
Printed in Germany



Please read this operating  
manual before first  
commissioning.  
Keep it in a safe place for  
future use.



# *Reading the instruction*

*Manual and following it should seem to be inconvenient and superfluous as it is not enough to hear from others and to realize that a machine is good, to buy it and to believe that now everything should work by itself. The person in question would not only harm himself but also make the mistake of blaming the machine for possible failures instead of himself. In order to ensure success one should enter the mind of a thing, make himself familiar with every part of the machine and get acquainted with how it's handled. Only in this way could you be satisfied both with the machine and with yourself. This goal is the purpose of this instruction manual.*

*Leipzig-Plagwitz 1872. Rud. Sark.*



---

Identification data

Manufacturer: **AMAZONEN-WERKE**  
H. DREYER GmbH & Co. KG

Machine identification no.:

Type: **AMADOS+**

---

Manufacturer's address

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---

Spare part orders

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Fax: + 49 (0)5405 501-106  
E-mail: et@amazone.de  
Online spare parts catalogue: [www.amazone.de](http://www.amazone.de)  
When ordering spare parts, always state your machine number.

---

Formalities of the operating manual

Document number: MG3215  
Compilation date: 05.09  
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## Foreword

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## Foreword

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Dear Customer,

You have chosen one of the quality products from the wide product range of **AMAZONEN-WERKE**, H. DREYER GmbH & Co. KG. We thank you for your confidence in our products.

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Using the delivery note, check that the machine was delivered in full including the ordered special equipment. Damage can only be rectified if problems are signalled immediately!

Before first commissioning, read and understand this operating manual, and particularly the safety information. Only after careful reading will you be able to benefit from the full scope of your newly purchased machine.

Please ensure that all the machine operators have read this operating manual before commissioning the machine.

Should you have problems or queries, please consult this operating manual or give us a call.

Regular maintenance and timely replacement of worn or damaged parts increases the lifespan of your machine.

## User evaluation

---

Dear Reader,

We update our operating manuals regularly. Your suggestions for improvement help us to create ever more user-friendly manuals. Send us your suggestions by fax.

### **AMAZONEN-WERKE**

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# 1 User Information

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The User Information section supplies information on use of the operating manual.

## 1.1 Purpose of the document

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This operating manual

- Describes the operation and maintenance of the machine.
- Provides important information on safe and efficient handling of the machine.
- Is a component part of the machine and should always be kept with the machine or the traction vehicle.
- Keep it in a safe place for future use.

## 1.2 Locations in the operating manual

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All the directions specified in the operating manual are always seen from the direction of travel.

## 1.3 Diagrams used

---

### Handling instructions and reactions

---

Activities to be carried out by the user are given as numbered instructions. Always keep to the order of the handling instructions. The reaction to the handling instructions is given by an arrow. Example:

1. Handling instruction 1  
→ Reaction of the machine to handling instruction 1
2. Handling instruction 2

### Lists

---

Lists without an essential order are shown as a list with bullets. Example:

- Point 1
- Point 2

### Number items in diagrams

---

Numbers in round brackets refer to the item numbers in the diagrams. The first number refers to the diagram and the second number to the item in the figure.

Example: (Fig. 3/6)

- Figure 3
- Item 6

## 2 General Safety Instructions

This section contains important information on safe operation of the machine.

### 2.1 Obligations and liability

#### Comply with the instructions in the operating manual

Knowledge of the basic safety information and safety regulations is a basic requirement for safe handling and fault-free machine operation.

### 2.2 Representation of safety symbols

Safety instructions are indicated by the triangular safety symbol and the highlighted signal word. The signal word (DANGER, WARNING, CAUTION) describes the gravity of the risk and has the following significance:



#### **DANGER**

**Imminent** danger to life and health (serious injury or death).  
If these instructions are not followed, serious injury or risk to health will result, even fatal injury.



#### **WARNING**

**Possible** danger to life and health.  
If these instructions are not followed, serious injury or risk to health may result, even fatal injury.



#### **CAUTION**

**Possibly** dangerous (light injuries or material damage).  
If these instructions are not followed, light injuries or material damage may result.



#### **IMPORTANT**

Obligation to special behaviour or an activity required for proper machine handling.  
Non-compliance with these instructions can cause faults on the machine or in the environment.



#### **NOTE**

Handling tips and particularly useful information.  
These instructions will help you to use all the functions of your machine to the optimum.

## 2.3 Organisational measures



### The operation manual

- **Must always be kept at the place at which the machine is operated.**
- **Must always be easily accessible for the user and maintenance personnel.**

**Check all the available safety equipment regularly.**

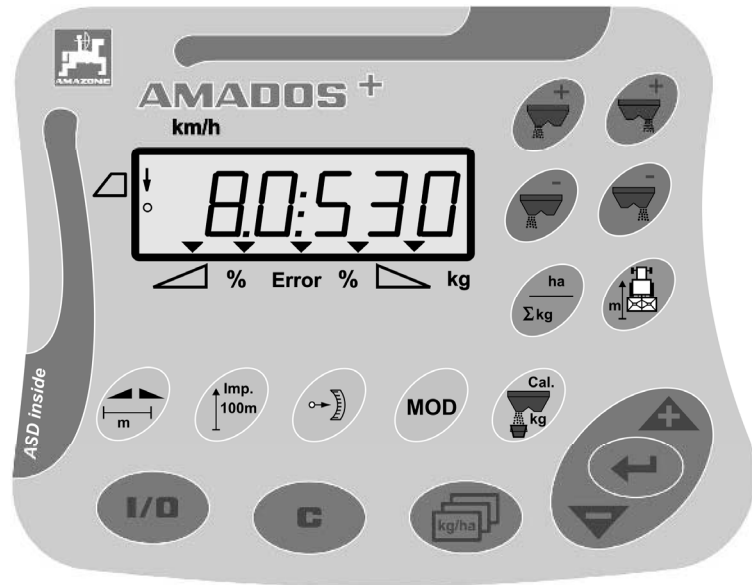
## 2.4 Safety information for users

### 2.4.1 Electrical system

- When working on the electrical system, always disconnect the battery (negative terminal).
- Only use the prescribed fuses. If fuses are used that are too highly rated, the electrical system will be destroyed – danger of fire!
- Ensure that the battery is connected correctly – first connect the positive terminal and then connect the negative terminal. When disconnecting the battery, disconnect the negative terminal first, followed by the positive terminal.
- Always place the appropriate cover over the positive battery terminal. If there is accidental earth contact, there is a danger of explosion!
- Danger of explosion! Avoid the production of sparks and naked flames in the vicinity of the battery!
- The machine can be equipped with electronic components, the function of which may be influenced by electromagnetic interference from other units. Such interference can pose risks to people, if the following safety information is not followed.
  - If retrofitting electrical units and/or components on the machine with a connection to the on-board power supply, the user is responsible for checking whether the installation might cause faults on the vehicle electronics or other components.
  - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 89/336/EEC in the appropriate version and carry the CE label.



### 3 Product description



The **AMADOS+** has

- 17 operation keys
- a 6-digit display with additional symbols for display.

#### 3.1 Software version

This operating manual is applicable for software status 12.11.2007. The software status is briefly displayed after the **AMADOS+** is switched on.

#### 3.2 Intended use

The **AMADOS+**

- is intended as a display, monitoring and control unit for the **AMAZONE** fertiliser spreader **ZA-M**.

The intended use also includes:

- Compliance with all the instructions in this operating manual.
- Execution of inspection and maintenance work.
- Exclusive use of original **AMAZONE** spare parts.

Other uses to those specified above are forbidden and shall be considered as improper.

For any damage resulting from improper use:

- the operator bears the sole responsibility,
- AMAZONEN-WERKE assumes no liability whatsoever.

#### 3.3 Conformity

Directives / standards

The machine fulfils the:

- Machines directive 98/37/EC
- EMC directive 89/336/EEC

## 4 Structure and function

### 4.1 Function

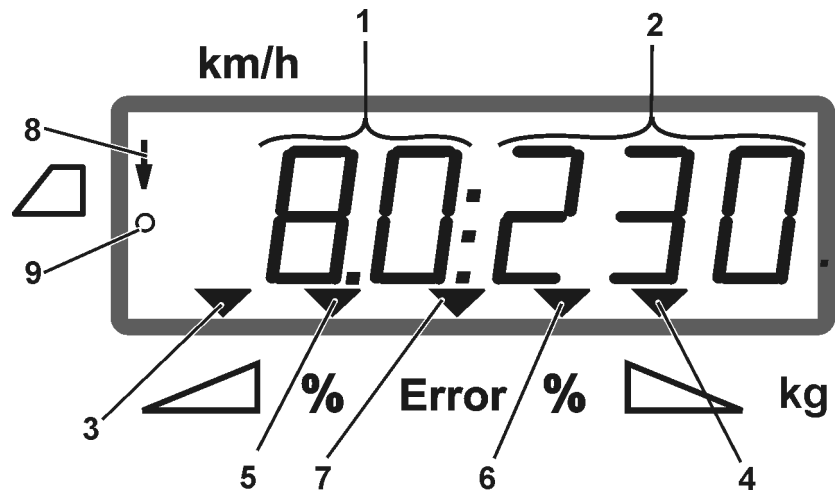
The **AMADOS<sup>+</sup>**

- controls the spread rate [kg/ha] according to travel speed. For this purpose, the slider positions can be altered by means of 2 setting motors.
- allows adjustment of the spread rate in any number of steps (for both sliders, together and individually).
- indicates the current travel speed in [km/h].
- determines per order
  - the worked area in [ha],
  - the spread quantity in [kg].
- determines the total worked area in [ha].
- allows the exchange of order data of a field file.
- indicates the position of the **Limiter** during boundary spreading.
- allows spreading also without a wheel sensor / signal socket on the tractor (in event of defective wheel sensor) by inputting a simulated speed.



The **AMADOS<sup>+</sup>** is equipped with a memory and a battery. All input and determined values remain stored in the unit even when the on-board network is deactivated. The data is available again when the unit is switched on.

## 4.2 Display



**Fig. 1**

When the machine is operational, the display shows (Fig. 1):




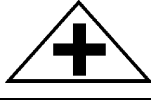
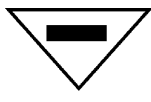




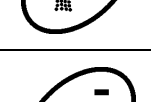
- (1) the current travel speed in [km/h]
- (2) the current spread rate in [kg/ha]
- (3) left slide gate opened
- (4) right slide gate opened

Current percentage deviation from spread rate specified value for

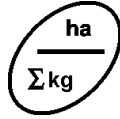
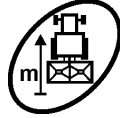
- (5) the left dosing slider
- (6) the right dosing slider
- (7) fault message
- (8) the position of **Limiter M** (only for position sensor)
- (9) determining the pulses from the sensor for recording area and distance to the **AMADOS<sup>+</sup>**

### 4.3 Description of keys

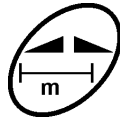
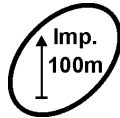
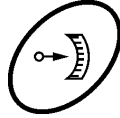


Orange keys for operating the fertiliser spreader:

<ul style="list-style-type: none"> <li>Switch <b>AMADOS<sup>+</sup></b> on and off</li> </ul> <p>→ After switching on, the work display appears and the <b>AMADOS<sup>+</sup></b> is ready for operation.</p>	
<ul style="list-style-type: none"> <li>Return to order display.</li> <li>Return to work display.</li> </ul>	
<ul style="list-style-type: none"> <li>Select order</li> </ul>	
<ul style="list-style-type: none"> <li>Input key to increase displayed value – both sliders</li> </ul>	
<ul style="list-style-type: none"> <li>Input key to reduce displayed value – both sliders</li> </ul>	
<ul style="list-style-type: none"> <li>Enter key</li> </ul> <p>All inputs must be concluded with this key</p>	
<ul style="list-style-type: none"> <li>Increase spread rate – left slider</li> </ul>	
<ul style="list-style-type: none"> <li>Increase spread rate – right slider</li> </ul>	
<ul style="list-style-type: none"> <li>Reduce spread rate – left slider</li> </ul>	
<ul style="list-style-type: none"> <li>Reduce spread rate – right slider</li> </ul>	

**Blue keys Work data:**

<ul style="list-style-type: none"> <li>• Display of the worked area for the current order.</li> <li>• Second press of key: Display of spread quantity [kg] for current order.</li> </ul>	
<ul style="list-style-type: none"> <li>• Distance counter</li> </ul>	

**Yellow keys for basic setting of fertiliser spreader:**

<ul style="list-style-type: none"> <li>• Enter working width</li> </ul>	
<ul style="list-style-type: none"> <li>• Enter or determine pulses per 100 m</li> </ul>	
<ul style="list-style-type: none"> <li>• Display pulse number of setting motors</li> </ul>	
<ul style="list-style-type: none"> <li>• Mode input</li> </ul>	
<ul style="list-style-type: none"> <li>• Input/determine fertiliser calibration factor</li> </ul>	

## 5 Commissioning

This section provides information on putting your machine into operation.



### CAUTION

- Before operating the fertilise spreader for the first time the operator must have read and understood the operating manual.
- See also the operating manual for the fertiliser spreader!

### 5.1 Connecting **AMADOS<sup>+</sup>**

1. Connect the machine mounted/attached to the tractor via the machine connector (Fig. 2/1).
2. Connect the signal cable from the tractor signal socket or the sensor X (Fig. 2/2) to the **AMADOS<sup>+</sup>**.

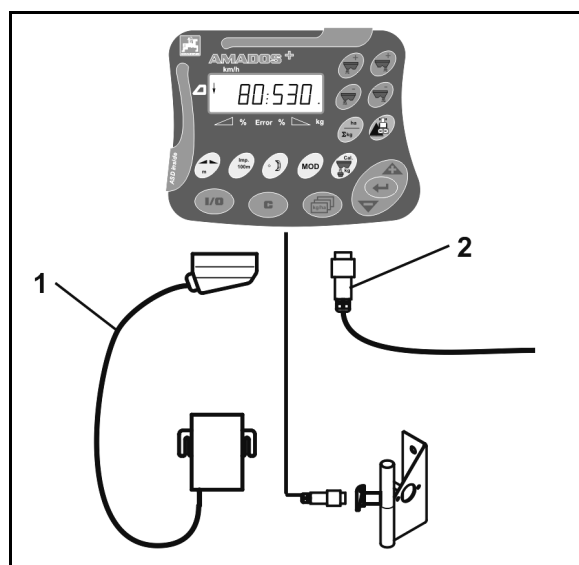



Fig. 2

### 5.2 Switching **AMADOS<sup>+</sup>** on and off



To switch the **AMADOS<sup>+</sup>** on and off, actuate the  key.

### 5.3 Making basic setting (mode 1 to mode 9)



As soon as the work display appears after switching on, the modes 1 to 9 can be entered.


#### Display of modes 1-9

- Actuate  key  
→ Display of mode 4
- Actuate  key several times  
→ Display of other modes (1-9)











Display of mode 4



- After initial actuation of the  key, mode 4 always appears (quantity reduction for boundary spreading).
- Mode 4 can also be changed without deblocking.

#### Changing modes 1-9:

1. Actuate the  and  keys simultaneously  
→ Deblock the stored modes
2. Actuate the  key and select the mode to be changed.
3. Enter the value with the  or  keys
4. Confirm with the  key
5. With the  key, select another mode for change, or return to the work display with the  key.

**Mode 1**

---

**Select machine type**

2 = ha counter

5 = Fertiliser spreader **ZA-M** (factory setting) → Select

**Mode 2**

---

**Enter application rate increase in %**

Entry of reduction or increase of spread rate for each press of the key (one side or both sides)

(0% - 99%, factory setting 10%)

**Mode 3**

---

**Is there a Limiter with position sensor (optional)?**

0 = **Limiter** without position sensor, no limiter Factory setting.

1 = **Limiter** with position sensor, installed on left.

2 = **Limiter** with position sensor, installed on right.

**Mode 4**

---

**Enter quantity reduction in % for boundary spreading**

Quantity reduction of the boundary-side dosing slider for boundary spreading and boundary/ditch spreading.

(0% - 99%, factory setting 0%)

**Mode 5**

---

**Enter maximum desired number of orders**

(1-99, factory setting 20)

**Mode 6**

---

**Enter planned mean working speed**

**AMADOS<sup>+</sup>** requires the entry to determine the fertiliser calibration factor.

(0 km/h to 99 km/h, factory setting 12 km/h)

**Mode 7**

---

**No information required****Mode 8**

---

**Enter theoretical travel speed for travel simulator**

(0 km/h to 99.9 km/h, factory setting 0 km/h → Travel simulator off)

**Mode 9**

---

**Enter transfer rate of serial interface**

(57,600 baud / factory setting 19,200 baud)



## 5.4 Determine pulses per 100m



The "Pulses per 100 m" calibration value is required by the **AMADOS<sup>+</sup>** to determine:

- the actual operational speed [km/h].
- the worked area.

If the value is not known, it must be established by way of a calibration run.

The "Pulses per 100 m" calibration value can be manually entered into the **AMADOS<sup>+</sup>**, if the precise value is known.



Establish the precise calibration value for "Pulses per 100 m" by way of a calibration run:

- before commissioning.
- when using a different tractor or after changing to different sized tractor tyres.
- if there is a discrepancy between the measured and the actual travel speed / distance travelled.
- if there is a discrepancy between the measured and the actual worked area.
- with different ground conditions.

The "Pulses per 100 m" calibration value must be established under the prevailing conditions in the field. If the tractor is to be used with all-wheel drive switched on, it must also be switched on when establishing the calibration value.

### Determine the pulses per 100m:

1. On the field, measure out a calibration distance of exactly 100 m.
2. Mark the start and end points (Fig. 3).

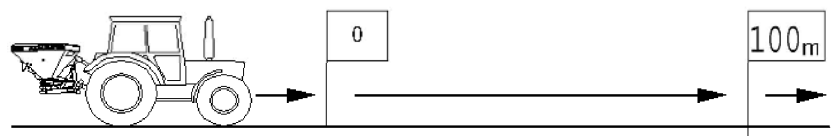


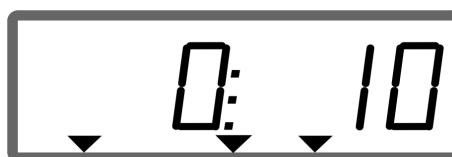




Fig. 3

3. Actuate the  and  keys simultaneously.
  4. Travel a calibration distance of exactly 100m and stop.
- Do not press any keys during the calibration travel.




Display during calibration


5. After 100m, accept the determined value with the  key.



6. Confirm with the  key.


7. Back to work menu


- o automatically after 10 seconds
- o with  key

#### Enter the pulses per 100m:


1. With the vehicle at standstill, press .

2. Enter the value with the  or  keys.

3. Accept with the  key.

4. Confirm with the  key.


5. Back to work menu

- o automatically after 10 seconds
- o with  key



## 5.5 Enter working width




Display of working width

1. Actuate the  key.


→ Current value is displayed.

2. Enter the value with the  or  keys.

3. Confirm with the  key.





## 5.6 Entering the spread rate and starting an order



- The spread rate is entered for a selected order.
- An order is started by selecting an order and entering the spread rate or actuating the  key.
- During the spreading,
  - the spread rate entered for the started order is spread.
  - the field plot for the started order, the total area is determined.




Display of spread rate

1. Actuate the  key with the vehicle at standstill.  
→ The last processed order appears on the display
2. Select an order with the  key
3. Enter the required spread rate [kg/ha] via the  or  key, e.g. "350" for the spread rate 350 kg/ha.





- For spread quantities over 1000 kg
- the thousandth decimal point is not indicated in the work display
  - instead of three points, two points are displayed.




4. Confirm with the  key.

## 5.6.1 Display of order data

1. Actuate the  key (several times if necessary).  
→ Select order.
2. Actuate the  key.  
→ The worked area in ha is displayed for the order.




Display of area

3. Actuate the  key again.  
→ The spread rate in kg is displayed for the order.



Display of quantity indicating kg





4. Actuate the  key (actuate 2 x).  
→ Back to order (back to work display).



By actuating the key combination  and , the total area in ha for all orders can be displayed!

## 5.6.2 Deleting order data

Delete the data stored for an order as follows.

1. Actuate the  key (several times if necessary).  
→ Select the order to be deleted.
2. Actuate the  and  keys simultaneously.  
→ Order data are deleted.
3. Actuate the  key (actuate 2 x).  
→ Back to order (back to work display).

## 5.6.3 External order (ASD)

Using a PDA computer, an external order can be transferred to the **AMADOS<sup>+</sup>**.

This order is always given the designation AE (Fig. 4).



Fig. 4

The data is transferred via the serial interface.

- For this purpose, set the transfer rate of the serial interface to 19200 or 57600 baud (mode 9).
- The Y cable is required for this.

Fig. 5/...

- (1) Connection for PDA computer
- (2) Connection for signal socket or sensor for pulses per minute.
- (3) Connection to **AMADOS<sup>+</sup>** (4).

The external order is started and ended via the connected computer.

Emergency termination of external order on the **AMADOS<sup>+</sup>**:

1. Actuate the  and  keys simultaneously.

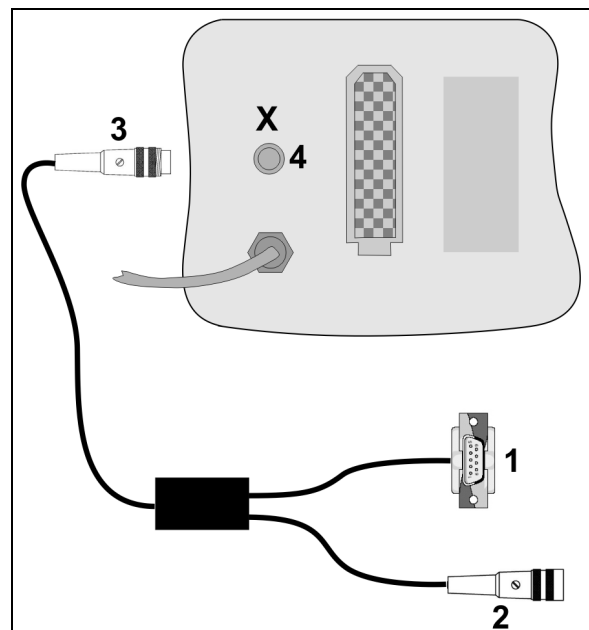


Fig. 5

## 5.7 Carrying out spread rate check



- During the spread rate check, the fertiliser calibration factor is determined with
  - the machine coupled with the tractor,
  - the driven PTO shaft,
  - the tractor at standstill.
- The fertiliser calibration factor can also be entered directly, if known.

### Determining the fertiliser calibration factor

The fertiliser calibration factor determines the regulating behaviour of the **AMADOS<sup>+</sup>** and is dependent on

- the flow characteristics of the fertiliser to be spread.
- the entered spread rate.
- the entered working width.



- The fertiliser flow characteristics may change even after a brief fertiliser storage period.
- Therefore before each use determine anew the fertiliser calibration factor of the fertiliser to be spread.
- Always determine anew the fertiliser calibration factor
  - if the spread rate is changed.
  - if there are deviations between the theoretical and the actual spread rate.




Note the maximum spread rates to be entered specified in Table 1, according to the working width and working speed.

Working width [m]	max. spread rate to be entered [kg/ha]		
	8 km/h	10 km/h	12 km/h
10	2400	1800	1500
12	2000	1500	1250
15	1600	1200	1000
16	1520	1140	950
18	1350	1013	844
20	1220	915	763
21	1160	870	725
24	1010	758	632
27	900	675	563
28	870	653	544
30	810	608	507
32	760	570	475
36	680	510	425

Table 1

### Determine the fertiliser calibration factor during standstill:

1. Check the entries for the desired spread rate and working width and correct as necessary.
2. Add a sufficient quantity of fertiliser to the hopper.
3. Remove the **left** spreading disc and screw the thumb screw back into the gearbox shaft.
4. Secure the collection bucket under the outlet opening – see operating manual for **ZA-M**.

5. Press .
6. Enter a calibration value on the display via the  or  keys, e.g. 1.00.

To enter the calibration factor,




- the calibration factor (quantity factor) can be taken from the setting chart.
- values based on experience can be used.

### Realistic calibration factors (0.7-1.4):

- approx. 0.7 for urea
- approx. 1.0 for calcium ammonium nitrate
- approx. 1.4 for fine, heavy PK fertiliser



Display after entry of calibration factor

7. Press  and confirm.
  8. Press , hold and at same time press .
- The calibration procedure starts.



Display at start of fertiliser calibration

9. Operate the PTO shaft at the speed as per setting chart.
10. Open the left slide gate.
  - On the display, the slide gate opening time is indicated.
11. Close the left slide gate
  - when the bucket is full.

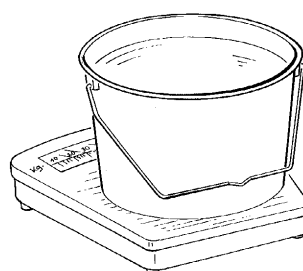




Display after closing of the slider

12. Weigh the collected fertiliser quantity.




- The scales used must weigh accurately. Significant inaccuracies may cause deviations in the actual spread rate!
- Take the bucket weight into consideration.




13. Select the weight of the fertiliser quantity via the  or  keys on the display, e.g. "12.50" for 12.5 kg.

14. Press  and confirm.

→ **AMADOS<sup>+</sup>** determines the fertiliser calibration factor.

15. Press  and the fertiliser calibration factor is displayed.
16. After completing the calibration, refit the spreading disc.



By actuating the  key, the fertiliser calibration factor can be displayed at any time.



## 6 Use of the machine



### DANGER

- When using the machine, refer to the operating manual for the fertiliser spreader.
- When using the machine, refer to the section "Safety instructions for the user", on page 8.






Before using the machine, you must

- enter the spread rate for the desired order
- determine the calibration factor of the fertiliser to be spread by means of a spread rate check.



During use, the accumulating data for the current order can be displayed.

### Procedure for use

1. Switch on the  **AMADOS<sup>+</sup>**.
2.  Select the order
  - Check the specified quantity or
  - Enter the specified quantity and confirm.
3.  Back to work menu.



During fertiliser spreading, the work display indicates that

- the **AMADOS<sup>+</sup>** is receiving the pulses for distance calculation (Fig. 6/1),
- the slide gates are open (Fig. 6/2).

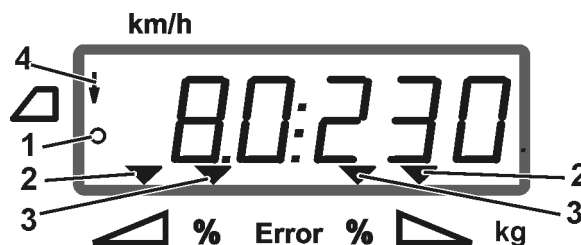


Fig. 6

Work display



- Boundary spreading is indicated by an arrow in the display (Fig. 6/4).
- During boundary spreading with the **Limiter** boundary spreading device, the spread rate at the boundary is automatically reduced (depending on entry under mode 4).

## Changing the spread rate during spreading

During spreading, the preselected spread rate specified value can be changed for both sliders **jointly** or for each slider **individually**.



- With each press of the key, the spread rate is increased or reduced by the increment in % entered in mode 2.
- If the key is pressed several times, the spread rate is changed by a multiple amount.

- Actuate the  or  key.

→ Joint spread rate change for both sliders.

With each press of the key, the set spread rate is changed jointly for both sliders by the entered increment.



Display of spread rate left and right +10 %

- Actuate the   key.

→ Individual independent spread rate change for the right slider.


- Actuate the   key.

→ Individual independent spread rate change for the left slider.

With each press of the key, the set spread rate is changed for the respective slider by the entered increment.



Display of spread rate right -10 %, left 100 %



- Actuate the  key.
- Specified quantity back to 100%, work display appears.



- The spread rate change in % is displayed for five seconds, then the work display reappears.
- In the work display, the triangle symbols (Fig. 6/3) indicate a spread rate change.

## 6.1 Distance counter

In lots without tramlines (e.g. pastures), the distance counter serves to determine the distance after turning on the field.

1. At the end of the field, drive transverse to the working direction and at the level of the tractor track (Fig. 7/1) press the  key.
  - The distance is indicated in the display.
  2. If the display shows the value of the working width as distance (Fig. 7/2), start the next run.
  3. The distance counter is deactivated
- by actuating the  key.
  - automatically five seconds after continuing the fertilisation.

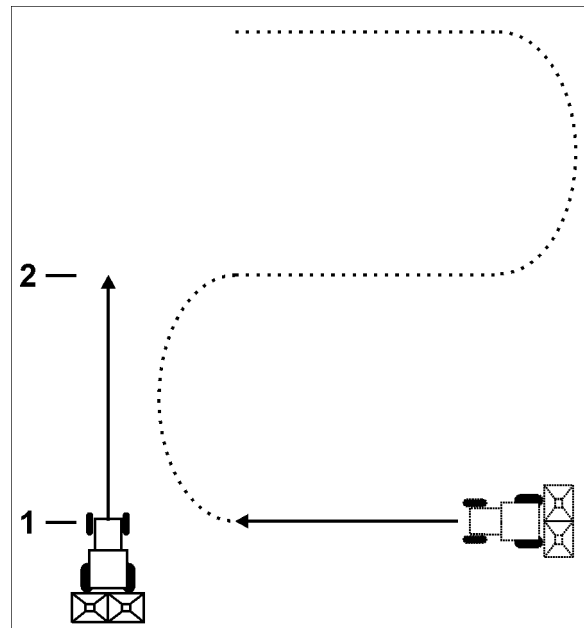


Fig. 7



The distance counter can be reset to 0 by another press of the



## 7 Cleaning, maintenance and repairs

### 7.1 Cleaning



When cleaning the spreader with a high-pressure cleaner, do not aim the cleaning jet directly at the cable inputs, sensors and sockets.

In event of welding operations on the tractor or spreader, first disconnect the power supply to the **AMADOS<sup>+</sup>**!


After cleaning, oil the joints on the dosing levers.

The **AMADOS<sup>+</sup>** is maintenance-free. In the winter, keep the **AMADOS<sup>+</sup>** in a heated room. Protect the non-assigned sockets with protective caps against dust penetration and humidity.

#### Opening the slider for cleaning purposes

To clean the fertiliser hopper, open the dosing slider and slide gate!

1. Hydraulically open the slide gate.

2. Press  button when machine is inoperative.

3. Press  button.

→ Left dosing slider opens fully.

4. Press  button.

→ Right dosing slider opens fully.






To close the dosing slider:

Switch the **AMADOS<sup>+</sup>** off and on again.

### 7.2 Resetting the **AMADOS<sup>+</sup>** to factory setting

After the reset, all settings are reset to the standard factory values.

To reset

Press and hold the  and  keys and then actuate .

#### Factory settings:

Working width:	20
Imp./ 100 m:	1800
Spread rate:	200
Fertiliser calibration factor:	1.0
Mode:	See page 16

### 7.3 Checking the basic setting of the dosing sliders

The basic setting of the dosing sliders is set at the factory so that the dosing sliders move approximately to the 0 position when the hydraulic sliders are closed after the **AMADOS<sup>+</sup>** is switched on.

It is necessary to change the basic setting of the dosing sliders only if

- uneven emptying of the two hopper tips is detected.
- the setting motor has been replaced.
- desired and actual spread rates deviate significantly from each other and calibration errors or other causes have been ruled out.

#### 1. Connecting the supply lines

- Connect the tractor power supply to the **AMADOS<sup>+</sup>**,
- Insert the machine connector at the **AMADOS<sup>+</sup>**,
- Connect the hydraulic hose lines.

#### 2. Do **not** fill the hopper with fertiliser.

#### 3. Switch on the **AMADOS<sup>+</sup>**.

4. Actuate the  and  keys simultaneously.

→ The pulse number **0 +/- 5** of the left setting motor with the dosing slider closed is indicated.

5. Actuate the  key.

→ Left dosing slider open.



- The pulse number **1500 +/- 5** pulses must appear on the display.
- The read-off edge of the pointer must indicate slider position **41±1** for the left dosing slider.

6. Actuate the  key.

→ The pulse number **0 +/- 5** of the right setting motor with the dosing slider closed is indicated.

7. Actuate the  key.

→ Right dosing slider open.



- The pulse number **1500 +/- 5** pulses must appear on the display.
- The read-off edge of the pointer must indicate slider position **41±1** for the right dosing slider.



If the displayed pulse numbers are within the tolerance range, check the outlet opening of the two dosing sliders with an adjustment gauge.



The slider position  $41 \pm 1$  is only a guide value, the decisive factor is the exposed outlet opening cross-section. The outlet opening exposed by the dosing slider must measure 62 mm.



If the displayed pulse numbers are not within the tolerance range, please consult our Customer Service.

If no pulse number is displayed, there may be a fault with signal reception in the setting motor.

### 7.3.1 Checking the outlet opening



#### CAUTION

- The fertiliser spreader must be placed on an even surface.
- The lock on the transportation device (if fitted) must be actuated.



- The outlet opening
  - must be checked by a specialist workshop or
  - use the adjustment gauge (order no. 915018).
- Check the outlet opening on both sides.



#### CAUTION

**Do not reach into the outlet opening while operating the sliders!**  
**Danger of crushing!**

It must be possible to move the adjustment gauge easily through the exposed outlet opening cross-section.

1. Open the slide gate.
2. Insert one end of the adjustment gauge (Fig. 8/1) into the lug of the outlet opening.
3. Swivel the adjustment gauge around the pivot point.

The adjustment gauge

- o must be able to pass through the outlet opening,
- o but must not have clearance to the slider.

If this is not the case (exposed opening cross-section too large or too small), adjust the fixture of the setting motor console with the guide for the dosing slider as follows:

1. Release the securing screws (Fig. 9/2) on the setting motor console (Fig. 9/3).
2. Insert the adjustment gauge (Fig. 9/1) into the outlet opening.
3. Swivel the setting motor console (Fig. 9/3) against the adjustment gauge and retighten the securing screws (Fig. 9/2).
4. Again check the opening cross-section with the adjustment gauge.

Check whether on the spread rate setting scale (Fig. 10/1) slider position 41 is indicated for the dosing sliders. If necessary, release the pointer fixture (Fig. 10/2) and align the pointer read-off edge (Fig. 10/3) with scale value 41.

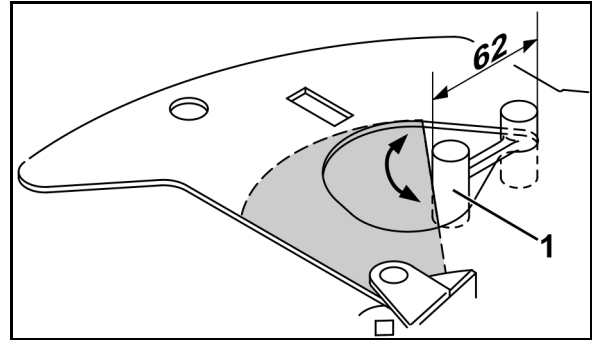


Fig. 8

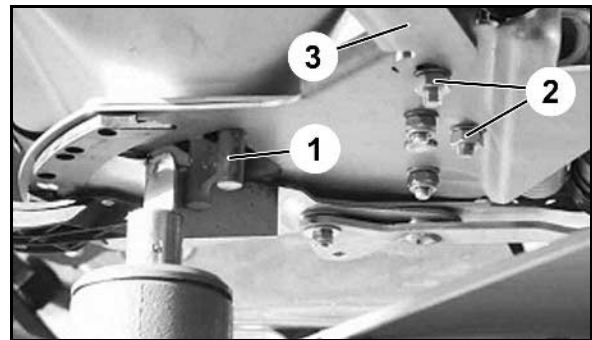


Fig. 9

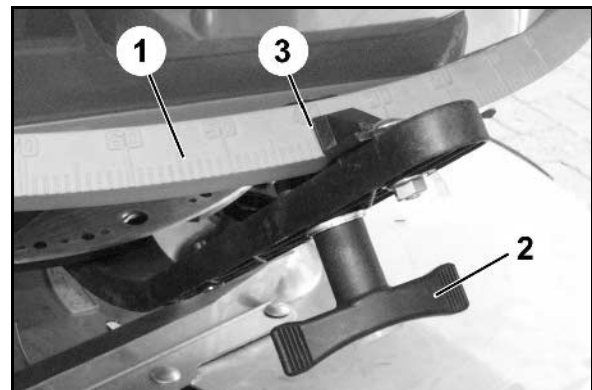


Fig. 10

## 8 Faults

### 8.1 Alarm messages

Alarm message	Cause	Remedy
A 10	Seed rate cannot be maintained.	Reduce travel speed.
A13	Left setting motor does not respond.	Check machine connector.
A14	Right setting motor does not respond.	Check machine connector.
A15	No entry / assessment of calibration factor.	Enter / determine calibration factor.



Display of alarm message

### 8.2 Failure of setting motors

If faults develop in the **AMATRON<sup>+</sup>** or the electric setting motors that cannot be eliminated immediately, it is still possible to continue working **after the setting motors have been disconnected**.

The rate as per setting chart is then determined by means of the setting lever (Fig. 11/1).

1. Close the slide gates.
2. Undo the wing nut (Fig. 11/2).
3. Look for the required slider position on the scale (Fig. 11/3).
4. Adjust the read-off edge (Fig. 11/4) of the setting lever pointer (Fig. 11/5) so that it corresponds to the scale value.
5. Retighten the wing nut (Fig. 11/2).

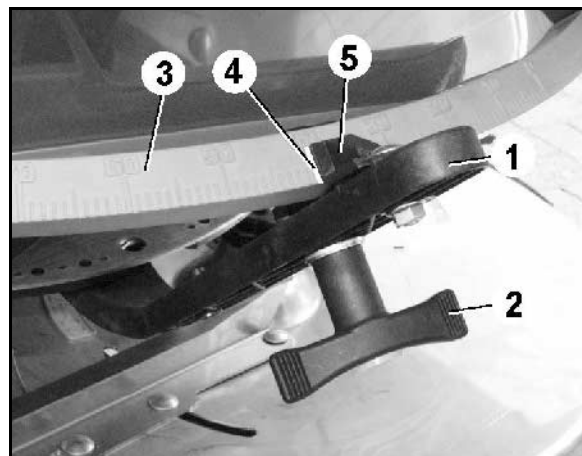


Fig. 11

#### Disconnecting the setting motors:

1. Remove the two securing clips (Fig. 12/1) with pliers (Fig. 12/2).

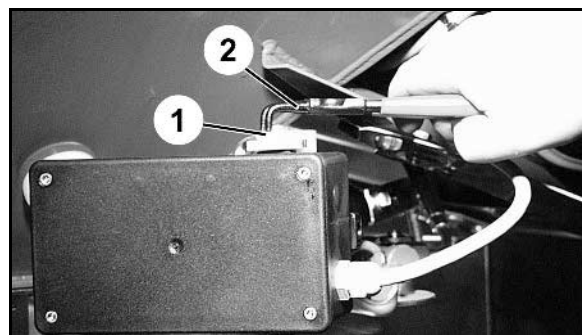
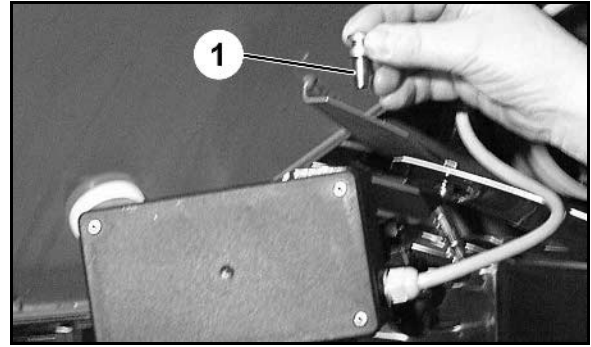


Fig. 12



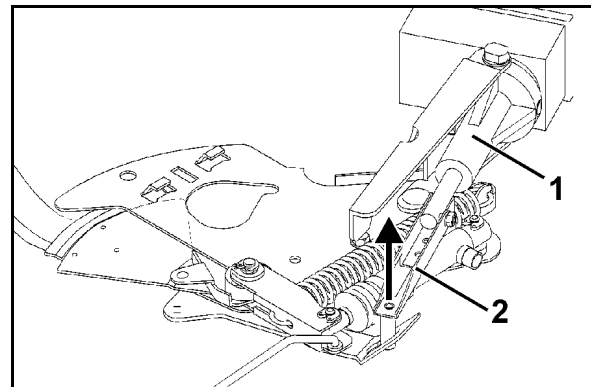
2. Withdraw the two hinge pins (Fig. 18/1).
3. Remove the setting motor from the engine console.


**Fig. 13**

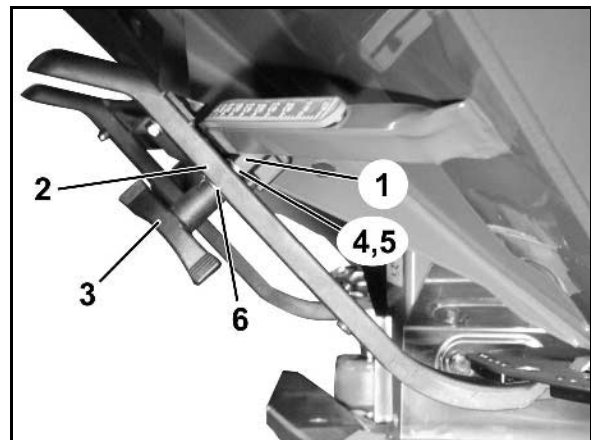
4. Raise the setting motor (Fig. 14/1) and detach the pushrod (Fig. 14/2) from the plug-in connection of the dosing slider.
5. Then again secure the setting motor with detached pushrod in the engine console in accordance with regulations.



Secure the detached pushrod against swivelling into the working area of the hydraulic cylinder.


**Fig. 14**






6. Set up the clamping device (Fig. 15/1) for setting levers (Fig. 15/2) as follows:
7. Unscrew the wing nut (Fig. 15/3).
8. Remove the screw and reposition the two washers (Fig. 15/4) from the back (Fig. 15/5) to the front (Fig. 15/6).


**Fig. 15**

## 9 Inputs on the **AMADOS<sup>+</sup>**









Via the inputs E1 to E8, the **AMADOS<sup>+</sup>** receives the data necessary for proper function.

To limit a possible malfunction, the inputs can be indicated on the display.

1. Actuate the  and  keys simultaneously.  
→ Input E1 is displayed.
2. Actuate the  or  keys.  
→ To display the inputs E1 to E8
3. Actuate the  key.  
→ Back to work display



Display, input 1

<b>E1</b>	Wheel pulses	The pulses from the distance sensor or the signal socket of the tractor are counted.
<b>E2</b>	Dosing pulses, left	Actuate the  or  key → Pulses are counted, setting motor moves.
<b>E3</b>	Dosing pulses, right	Actuate the  or  key → Pulses are counted, setting motor moves.
<b>E4</b>	Actuation direction of motor left	Actuate the  key → 0, dosing slider opens Actuate the  key → 1, dosing slider closes
<b>E5</b>	Actuation direction of motor right	Actuate the  key → 0, dosing slider opens Actuate the  key → 1, dosing slider closes
<b>E6</b>	Slide gate, left	Open → 1, LED on sensor lights up. Closed → 0, LED on sensor does not light up.
<b>E7</b>	Slide gate, right	Open → 1, LED on sensor lights up. Closed → 0, LED on sensor does not light up.
<b>E8</b>	Limiter	raised → 1, LED on sensor lights up. lowered → 0, LED on sensor does not light up.

## 10 Installation instructions

### 10.1 Console and computer



The console (Fig. 16/1) must be installed to the right of the driver in the cab, within visual range and easy reach, so that it is vibration-free and electrically conductive. The distance from the radio unit or aerial must be at least 1 m.

1. The computer mount (Fig. 16/2) is fitted on to the console pipe line.
2. Secure the bushing (Fig. 16/3) of the battery cable on the console.
3. The optimum angle of vision for the display can be adjusted by positioning the computer.



Care should be taken to ensure that the computer housing has a conductive connection to the tractor chassis via the console. For the installation, the paint must be removed from the installation points in order to prevent the build-up of an electrostatic charge.

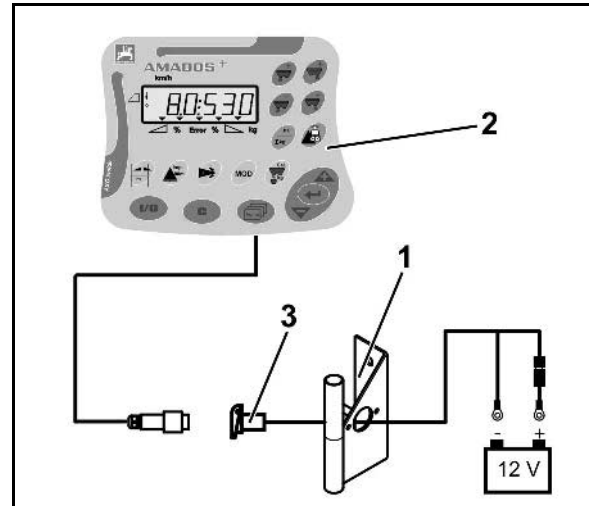


Fig. 16

### 10.2 Battery cable

The required operating voltage is **12 V**, which must be drawn directly from the battery or from the 12-volt starter motor.

1. Install and secure the battery cable from the tractor cab to the tractor battery. When installing the battery cable, make sure there are no kinks.
2. Shorten the battery cable to the appropriate length.
3. Strip the cable end approx. 250 to 300 mm.
4. Strip the cable ends individually 5 mm.

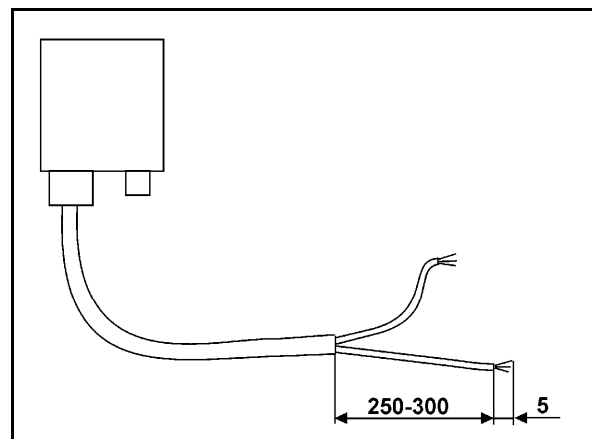
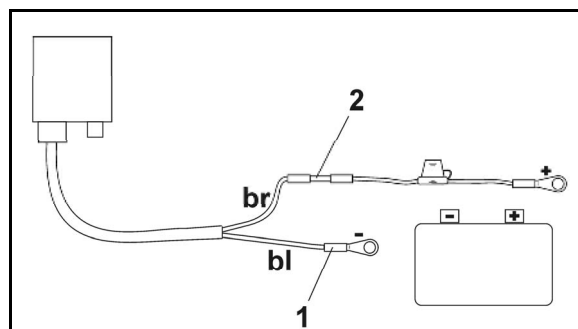


Fig. 17

## Installation instructions

5. Insert the blue cable core (earth) into the ring lug (Fig. 18/1).
6. Pass pinch through with flat pliers.
7. Insert brown cable core (+ 12 volts) into free end of connector (Fig. 18/2).
8. Pass pinch through with flat pliers.
9. Shrink-fit connector (Fig. 18/2) with heat source (lighter or hairdryer) until the adhesive emerges.
10. Connect the battery cable to the tractor battery:
  - o Brown cable core to **+** - pole of battery.
  - o Blue cable core to **-** - pole of battery.



**Fig. 18**



**Before connecting the **AMADOS<sup>+</sup>** to a tractor with several batteries, it must be clarified, by referring to the tractor operating instructions or by asking the tractor manufacturer, which battery the computer must be connected to.**





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