Operating Instructions

Controls

Easytronic 2.4

for Saphir 7

- EN -

Item no. 17510485
1/07.12

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Dear customer,

Thank you for the trust you have placed in us by purchasing this device. The device can only be used to its full advantage when operated and used properly. When the device was delivered, you will already have been instructed in operation, adjustment and maintenance by your dealer. However, this brief instruction is not a substitute for thorough study of the operating instructions.

These operating instructions will help to familiarise you with the LEMKEN GmbH & Co. KG device and the options available for using it.

The operating instructions contain important information about how to operate the device safely, properly and efficiently. Following the instructions will help to prevent hazards, faults and down times and will increase reliability and service life. Read the operating instructions carefully and attentively before commissioning.

Make sure that the operating instructions are always available at the location where the device is used.

The operating instructions must be read and followed by anyone who is involved in carrying out the following work:

- Coupling and uncoupling
- Adjustments
- Operation
- Maintenance and repairs
- Troubleshooting, and
- Final shutdown and disposal.

Spare parts ordering

This device is supplied with a specification listing all assemblies that are relevant for the product. The spare parts list valid for your device includes both those assemblies relevant to you and those that are not intended for your device. Make sure that you only order spare parts that belong to the assemblies that can be found on your specification or the enclosed print out. When ordering spare parts, state the type designation and serial number of the device. This information can be found on the rating plate. Enter this data in the fields below so that it is always to hand.

Type designation:	
Serial number:	

Remember that you should only use genuine LEMKEN spare parts. Reproduction parts have a negative influence on the function of the device, have a shorter service life and present risks and hazards that cannot be estimated by LEMKEN GmbH & Co. KG. They also increase the maintenance costs.

Service and spare parts

Information on service and spare parts is available from your local dealer or our website at www.lemken.com.

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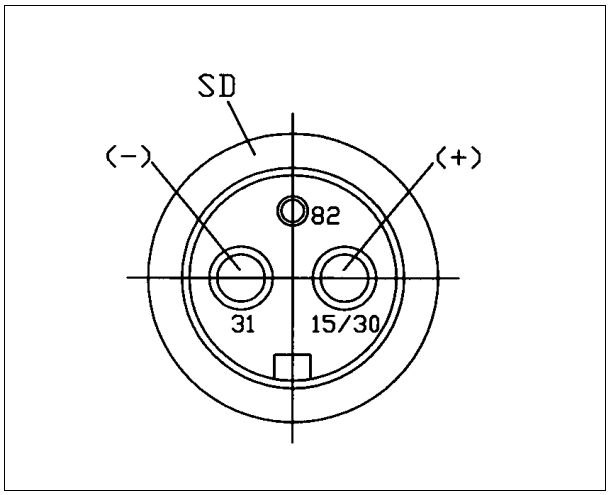
1 ELECTRIC

1.1 Plug



For the power supply of the electronic seed drill control a socket according to DIN 9680 must be provided at the tractor.

1.2 Operating voltage and fuse

For the electronic seed drill control Easytronic an operation voltage of 12 V is provided – range of tolerance between 10 V and 15 V.

Excess-voltage and undervoltage can lead to malfunctions and probably can destroy the electronic components. Furthermore a fuse protection of the power supply of at least 25 A must be ensured.

The electronic seed drill control Easytronic consists out of an operation terminal and a job computer. The operation terminal is accommodated in the tractor cab and the job computer is positioned in a grey collecting box at the implement.

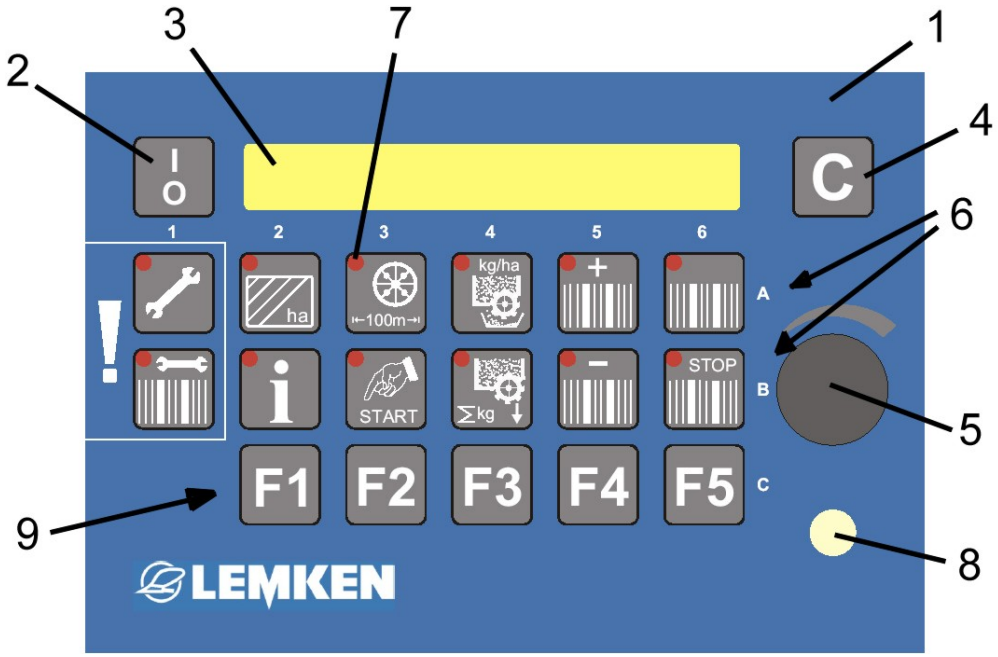
2 BASE INFORMATION

The operation of the electronic seed drill control is very easy and comfortable to handle. The selection, entering and saving of values and adjustments will be done always in accordance to the same procedure and will be described with this section.

The following part of this operating instruction presupposes the knowledge of this base information; therefore they will not be repeated.

2.1 Operation terminal

Via the operation terminal (1) the electronic seed drill control will be operated. It is connected to the collecting box of the seed drill via an 8 wire cable and consists out of a display (3), menu keys (6), function keys (9) and a rotary switch (5).



1 Operation terminal
2 Switch for switching on and off the system
3 Display
4 Delete key
5 Rotary switch for the selection of values
6 Menu keys
7 Light emitting diodes of the keys
8 Light emitting diode for the tramline mechanism and the switch of width sections
9 Function keys F1 to F5 , e.g. for switch off width sections

2.2 *Switching on and off the seed drill control*

2.2.1 Switching on

For switching on the seed drill control the switch (2) of the operation terminal (1) must be pressed shortly. A short system check follows. Therewith all light emitting diodes (7) of the menu keys (6) and the light emitting diode (8) light up shortly. After that the display (3) shows the indication of the software version, e.g. 

and after that the operation menu with the indication of the current tramline and the entered tramline rhythm 

,

e.g. current tramline = 3 and tramline rhythm = 5.

2.2.2 Switching off

For switching off the seed drill control, switch (2) must be pressed for two seconds.

2.3 *Menu guidance*

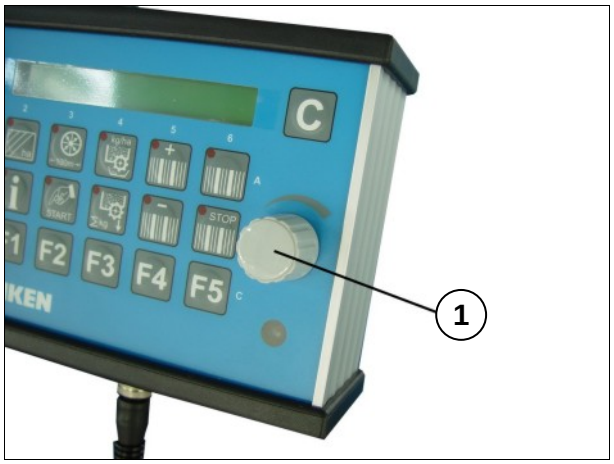
By means of a repeated short press of the menu key concerned, you will be guided through the chosen menu. If it is required to do something different, it is pointed out separately, e.g. “press 5 seconds” or “Press START”. Previously chosen values or adjustments will be saved at the same time.

When by means of pressing the menu key the end of the menu is reached, the first indication of the menu appears again with the next press.

2.4 *Operation menu*

As soon as the operation menu key  is pressed, the operation menu, where the tramlines respectively the tramline switch will be controlled, will appear.

2.5 Selection of values and adjustments



Values and adjustments will be chosen by means of the rotary switch (1). Therefore the head of the rotary switch must be turned correspondingly. The following part of the operation instructions speaks about “choosing” and “encoding”. That means always the operation of the rotary switch.

2.6 Saving of values and adjustments

By means of leafing further through each menu or by means of pressing the operation menu key  chosen values and adjustments will be saved.

When in the following part of the operating instructions it is spoken about „confirming“ or “saving“, that means the leafing through in a menu or the press of the operation menu key.

Important! When changing into another menu the value entered last will not be saved!

2.7 Language

The language of the menu has been set to the language of the customer already in the factory. If it is required to change the set language, the following must be done:

Press operation key to reach the operation menu.

Press enter key several times until it is no more possible to leaf further with a short key press. Press enter key (5 seconds) until

appears. Now press enter key several times with a short key press until the indication

appears.

Choose required language by means of the rotary switch (5), e.g. EN for English or F for French.

Press operation key shortly to confirm the desired language.

Press stop key shortly, to switch on the tramline further switch.

The operation menu with the indication of the current track and the chosen respectively calculated tramline rhythm will be shown in the display.

2.8 Keys

2.8.1 Menu keys

With the menu keys (6) the following adjustment, enter and control functions can be called up:

Enter key for entering the implement data and values by means of the rotary switch

Tramline for entering the working width of the following implement and the tramline method

Hectare key for calling up the hectare counting per field, day, year and in total

Info key for the indication of the implement condition and failures

Calibration key for the 100 m calibration in cm per pulse

START-key for starting the 100 m calibration and the calibration test

Calibration key for menu guided and computer-controlled calibration test

Seeding key for the indication of the sown seed rate in kilogram

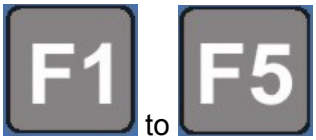
Plus key for the manual switching further of the current tramline

Minus key for the manual switching back of the current tramline

Operation menu key (for controlling the tramline mechanism)

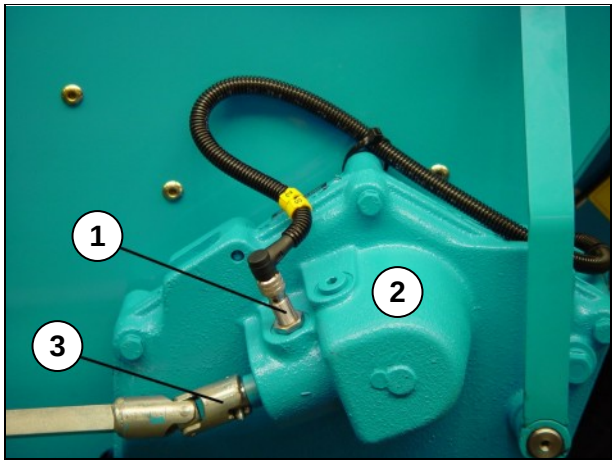
Stop key for activating and deactivating the tramline mechanism

2.8.2 Function keys



Function keys for calling up a function e.g. “working spot lights”, when this accessory is provided.

2.9 Way in cm per pulse



For measuring the distance, the pulses will be counted by means of the sensor (1). These pulses will be generated by a pulse pickup in the gear box (2).

In the gear box (2) one pulse pickup is provided with 6 teeth.

6 pulses will be counted per revolution of the entrance shaft (3). For this pulse pickup 

has been entered by the factory.

After a 100 m calibration, the stated value will change a little.

3 MENU OVERVIEW AND DISPLAY INDICATIONS

3.1 Menu overview 1 and display indications

Adjustment menu

Alarm HY-Accu.:	0
TL-Alarm:	0
Alarm hopper:	0
HA: - - TL	
Alarm TL-Stop:	0
Alarm d.wheel:	00 s

(press for 5 seconds)

cm /pulse:	**26,74** cm
Rows in track:	04
No. coulters:	24
Calibr.Menue:	1
W.-width:	3,0 m
Language:	D

Hectare menu

Field:	ha
Day:	ha
Year:	ha
ha:	ha

Stop key

Tramline:	03 : 05 P

Menu: 100 m calibration

Start position ?	
Press START	
Pulses:	0000

Drive 100 m

cm /pulse:	**26,74** cm

Operation menu

Tramline:	03 : 05

Tramline key

Seeding key

The menu overview shows also display indications which refer to optional accessories respectively optional functions, only.

3.2 Calibration menu 1

Press calibration test

g / 1000 = = > 000	Enter thousand grain weight
Seed / sqm: 000	Enter grains per square meter
Germination: 000 %	Enter germination in %
kg / ha : 202,1	Result = Seed rate kg/ha
1 / xx ha : 1 / 050 ha	Choose calibration area
1 / 050 ha g: 4040	Indication of the calculated required weight of the calibration test
Gear actual: 060	Adjust gearbox in accordance to the seed table
S. wheel filled?	Ensure, that the seed wheels are filled!
Press START	Press START-key
Pulses: **0249**	Indication of pulses for chosen calibration area
Pulses: 0000	Now turn the wheel until it has been counted down to 0000
Weight: 4240 g	Weight calibration test and enter in gram
kg / ha : 211	Result of the calibration test in kg/ha
Gear OK	If OK, that indication appears

If not OK, the new recommended gearbox adjustment appears. Adjust gearbox accordingly and carry through new calibration test

Enter thousand grain weight

Enter grains per square meter etc.

3.3 Calibration menu 2

Press calibration test

g / 1000 = = > 000	Enter thousand grain weight
Seed / sqm: 000	Enter grains per square meter
Germination: 000 %	Enter germination in %
kg / ha : 202,1	Result = Seed rate kg/ha
Gear actual: 060	Adjust gearbox in accordance to the seed table
S. wheel filled?	Ensure, that the seed wheels are filled!
Press START	Press START-key

Now turn the drive wheel until the calibration tray is filled sufficiently.

I: 0000 HA: 0,0000	Number of pulses (I) and the calibrated area concerned
Weight: 4240 g	Weight calibration test and enter in gram
kg / ha : 211	Result of the calibration test in kg/ha
Gear OK	If OK, that indication appears
Gear => 057	If not OK, the new recommended gearbox adjustment appears. Adjust gearbox accordingly and carry through new calibration test
g / 1000 = = > 000	Enter thousand grain weight
Seed / sqm: 000	Enter grains per square meter etc.

3.4 Information menu

m S1 (G): 0040 m	Metres driven after relaying of the machine track rhythm.
m traml.: 0140m	Metres driven after switching of the machine track.
km/h: 09,8	Actual driving speed
Failure A11: 1	Tank alarm, tank not yet filled up *
Failure A12: 1	Fuse alarm, fuse not yet replaced *
Failure A13: 1	Counter shaft stopped although it should be turning, since no machine track machined are to be engaged
Failure A14: 1	Counter shaft stopped although it should be turning, since machine tracks is to be engaged
Failure A15: 1	Hydraulic accumulator is empty and must be filled up
Failure A16: 1	Tail wheel not turning for lowered machine (no transmission gear pulse)
Failure A17: 1	STOP button is pressed with raised machine
Fuse F3: 1	Function of the fuse F3
Fuse F4: 1	Function of the fuse F4
Fuse F5: 1	Function of the fuse F5

Fuse F6: 1	Function of the fuse F6
Battery: 12.0 V	Current voltage
Outp.: 10100000	State of the engines and valves
Input E1: 0	Device sensor
Input E2: 0	Gear sensor
Input E3: 0	Counter shaft sensor
Input E4: 0	Tank sensor
Input E5: 0	Not occupied
Input E6: 0	Not occupied
Input E7: 0	Pressure switch for hydraulic accumulator
Input E8: 0	Pressure switch for track marker

* = The display goes out only if the fault has been rectified.

The fuses F1 and F2 are missing in the set-up. This is a self-healing system fuse that doesn't require any action!

4 ADJUSTMENTS

4.1 Adjustment menu

4.1.1 Alarm and hectare counting

In the adjustment menu the alarms for the implement control can be switched on and off. 0 = OFF! 1 = ON! Additionally the kind of operation for the hectare counting can be entered and adjustments made by the factory can be checked and adapted if required.

Press enter key to reach the entering menu. The entering menu for the first alarm adjustment appears. By means of the rotary switch choose whether the alarm should be switched on or off. By means of repeated press the adjustment will be saved and the following entering menu will be reached.

Choose 1 = Alarm ON or 0 = Alarm OFF and save

Choose 1 = Alarm ON or 0 = Alarm OFF and save

Choose 1 = Alarm ON or 0 = Alarm OFF and save

Now it is possible to enter whether the hectare counter should count the sown area, only or the sown area inclusive the tramline area.

The sown area as well as the tramline area will be counted.

The sown area will be counted. The tramline area is not taken into consideration.

Choose 1 = Alarm ON or 0 = Alarm OFF and save. Alarm which shows that the tramline-Stop key was pressed.

The time in seconds can be entered when the alarm should appear after the drive wheel has been stopped. With 0 seconds the alarm is switched off.

i The menu overview shows also display indications which refer to optional accessories respectively optional functions, only.

4.1.2 Factory adjustments

The following stated adjustments as cm/pulse, rows in track, number of returns, number of coulters and the working width have already been adjusted in the factory. If it is required to check or change these adjustments the following must be done.

Press entering key so often until it is not possible to leaf further.

Now press entering key  for 5 seconds to reach the entering menu for the factory adjustments.

26.74 cm/pulse is the factory adjustment for the wheel circumference in cm per pulse, which includes an estimated wheel slippage. This value will change slightly after a 100 m calibration. See also section “Wheel circumference in cm per pulse”.

Number of rows, which will be switched off when making tramlines.

Number of all seeding coulters of the seed drill.

The calibration menu 1 or the calibration menu 2 can be chosen. With the calibration menu 1 the calibration test will be carried through as usual in dependence from an entered area. With the calibration menu 2 the calibration test will be carried through independently from an entered area. The calibration test will be made until the calibration tray is filled optimally. The calibrated area will be recognised automatically and taken into consideration.

Working width of the seed drill in meters. If a not possible working width is entered, the indication 

appears.

Choose and confirm language.

If required the values or the language can be changed by means of the rotary switch. By means of pressing the entering key the chosen value will be saved. See also section “Selection of values and adjustments” as well as section „Saving values and adjustments“.When the enter key will be pressed once again the beginning of the adjustment menu will be reached again..

4.2 Tramline menu

4.2.1 Entering the width of the following implement

In the tramline menu the working width of the following implement as well as the desired tramline method will be entered.

Press rhythm key  to reach the tramline menu. The indication Bout width: 00 m appears.

Here with the working width of the following implement (fertilizer or spreader) will be entered Bout width: 15 m. By means of pressing the rhythm key again, the value is saved. If a working width of the following implement is entered which will not suit to the working width of the seed drill, first the indication Failure: A1 appears, after that Bout width? and finally the tramline menu with Tramline: 00 : 00.

The tramline mechanisme is switched off now. The process for the adjustment of the tramline rhythm has to be repeated.

Widths, which are 2, 3, 4 up to 20 times wider than the working width of the seed drill can only be entered.

4.2.2 Entering the tramline method

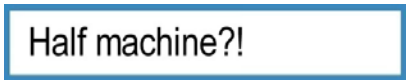
After entering the width of the following implement, press the tramline key again to reach the menu for the selection of the tramline method.

By means of the rotary switch either the tramline method 1 or 2 can be chosen. The tramline method 1 is suitable for straight and uneven method tramline rhythms. The tramline method 2 is suitable for straight tramline rhythms, only.

Tramline method 1:

With tramline method 1 the tramline will always be made when the current tramline and the tramline rhythm are the same on the display.

If a straight rhythm as e.g. 4, 6, 8 a.s.o. is calculated, the indication



appears after confirming the width of the following implement.

This indication shows, that for the first track the half working width of the seed drill must be switched off. The tramline switch will be adjusted automatically after the calculation of the rhythm, so that the first pass can be started without switching forward or backward the current track.

The display shows e.g. the indication

or

Tramline method 2:

With tramline method 2 

the tramline will always be made when the current tramline corresponds to the half tramline rhythm. On the display appears, e.g. the indication:

.

The tramline will be made in two passes, therefore only seed wheels of one seed drill side must be switched for making tramlines. When an uneven rhythm as e.g. 3, 5, 7 etc is calculated, 

appears on the display. Then the tramline method 1 must be chosen or another width of another following implement must be entered.

Switch off tramline switch:

When no tramlines should be made, a width of the following implement of 00 m must be entered. The operation menu shows the indication:

5 100 M CALIBRATION

With the automatic calibration of the wheel circumference cm per pulse the wheel circumference considering the real slippage can be calibrated. This is done as follows:

Measure a distance of 100 m and mark the start and end point clearly.

Drive to the starting mark.

Press calibration key 

; the indication 

appears.

When being in the start position, the calibration key 

must be pressed again.

The indication 

appears.

Press start key 

; the indication 

appears.

After appearing of this indication start to drive and stop exactly at the marked end point. After that press calibration key 

again to calculate and indicate the new wheel circumference, e.g. 

.

The factory adjustment of 26.22 cm/pulse contains an estimated slippage. The value calculated by the calibration drive contains the current slippage, and that in accordance to the field size. So the best seed rate accuracy is ensured.

6 CALIBRATION MENU

6.1 General

After entering the relevant data, the calibration test can be carried through.

For a professional calibration test with a precise seed rate calculation the calibration menu contains a few help functions:

- The desired seed rate can be entered in grains per square meter or kilo per hectare.
- For supporting an optimal seed rate, the thousand grain weight and the germination of the seed can be taken into consideration in the calibration menu.
- The calibration test can be carried through in the calibration menu 1 with regard to an area of 1/100 ha, 1/50 ha, 1/40 ha, 1/25 ha und 1/10 ha. In the calibration menu 2 the calibration test can be carried through independently from an area. The calibration test will be made until the calibration tray is filled sufficiently; the corresponding area will be calculated automatically.

After each calibration test a new gear box adjustment will be suggested. So no pocket calculator or LEMKEN calculation slide is required. When a calibration test will be repeated, the electronic seed drill control requires the entering of the previously suggested gear box adjustment.

6.2 Calibration test in accordance to the calibration menu 1

Press calibration key 

, to reach the calibration menu which has been chosen in the adjustment menu. Now it is possible to get stepwise through the menus for entering the thousand grain weight, seed rate per m², germination in %, calibration area and gear box setting.

After the first press of the calibration key the entering menu of the thousand grain weight is reached. All chosen values and adjustments will be saved respectively. confirmed after pressing the calibration key at the same time.

6.2.1 Entering the thousand grain weight

Enter the thousand grain weight of the corresponding seed in gram, e.g. 55 and confirm.

6.2.2 Entering the seed rate in seed / sqm

Enter seed/sqm, e.g. 350 and confirm.

6.2.3 Entering the germination

Enter the germination of the seed, e.g. 95 % and confirm.

The seed rate in kg/ha appears, which is calculated automatically out of the thousand grain weight, the seed rate = seed/sqm and the germination.

With the example with the thousand grain weight of 55g/1000, 350 seed/sqm and the germination of 95 %, the required seed rate of 202,1 kg/ha is calculated.

By means of pressing the calibration key once again the seed rate will be confirmed.

Attention!

If it is not required to seed this exactly calculated seed rate, but another seed rate in kg/ha, then the delete key 

must be pressed for 2 seconds to delete the indicated value. After that enter the new desired seed rate in kg/ha and confirm.

If it is required to enter directly the seed rate in kg/ha, the values for the thousand grain weight, the seed rate in seed/sqm and the germination must each be set to zero respectively 100% by pressing the delete key. After that enter the desired seed rate in kg/ha into the indication 

, e.g. 202,1.

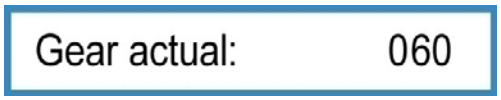
6.2.4 Entering the area of the calibration test

Choose the calibration area of 1/10 ha, 1/25 ha, 1/40 ha, 1/50 ha or 1/100 ha, e.g. 1/50 ha and confirm it.

The indication with the calculated required quantity of seed rate in g appears, e.g.

When after the calibration test 4.040 g are weighed, the seed drill is adjusted precisely.

6.2.5 Entering the gear box adjustment before the calibration test



Enter the gear box adjustment in accordance to the seed table respectively the real adjusted gear box for the first calibration test, e.g. 60, when the gear box is on 60, then confirm the entering. The indication 

appears.

When the seed wheels are not filled, the calibration tray must be brought into position and the drive wheel turned until the seed wheels have turned at least 10 times.

When the seed wheels are filled, empty the calibration tray, bring it into position again and press calibration test again. The indication for start of the calibration test appears.

6.2.6 Start the calibration test

When this indication appears, the start key 

must be pressed. The indication shows the number of pulses, which must be count down to zero by means of turning the drive wheel.

With a 3 m machine with the base adjustment of the wheel circumference of 26,74 cm per pulse and a calibration area of 1/50 ha the indication 

appears.

If another value as 26,74 cm/pulse has been entered, e.g. by means of the automatic entering after the 100 m calibration, an other value as 249 will be indicated.

6.2.7 Carrying through the calibration test

Now the drive wheel must be turned until the indication

Pulses:	0000

appears.

With the indication | Pulses: | 0050 | an interval tone sounds, which changes into a continuous tone as far as the indication | Pulses: | 0000 | appears. Now the drive wheel must be stopped.

If by mistake the drive wheel will be turned some turns further after the continuous tones has sound, this will be taken into consideration automatically. But the quantity which has to be calibrated must be proportionately more than the previously calculated quantity of e.g. 4040 g.

If it was stopped exactly with 000, the display would show the expected calibration quantity

Weight:	4040 g

6.2.8 Weighing and entering the calibration test

The calibration test must be weighed and the result in g entered by means of the rotary switch, e.g. 3366 g.

After that press the calibration key again.

The indication shows the seed quantity in kg/ha, which would be sown with the current machine adjustments, e.g.

kg / ha :	156,0

That is not enough as the example says that 202,1 kg/ha should be sown.

6.2.9 Adaptation of the gear box adjustment

The calibration key must now be pressed again. The indication shows a calculated suggestion for the gear box adjustment, with which it is expected that with the next calibration test a weight of 4040 g will be calibrated, e.g.

Correct the gear box adjustment as suggested, e.g. from 60 to 77.

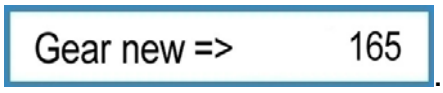
Attention! For the now required calibration test, the electronic seed drill control takes it for granted that the adjustment corrections of the gear box have been carried through.

Press calibration key and carry through the calibration test, and that as described from the section „Entering the thousand grain weight“ on. First when the calibration test deviates not more than 2 % from the desired result, no new gear box adjustment will be suggested. The display shows the following indication

The machine is adjusted correctly.

Deviations of up to 2 % will be allowed by the electronic seed drill control. When this deviation is too much, carry through a further calibration test to get closer to the desired seed quantity.

If a gear adjustment is calculated, which is not possible, first the indication 

appears and then e.g. 

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This shows that the maximal possible gear adjustment of 150 is exceeded.

Depending on the seed wheel version and sown seed, either the fine seed wheels or the big seed wheels must be switched on additionally or a lower seed quantity must be entered in seed/sqm or kg/ha.

See also operating instructions of the seed drill.

Attention: After changing the gear box adjustment or after switching on or off seed wheels a new calibration test must always be carried through.

For weighing the calibration test a calibrated scale may only be used. Also the LEMKEN scale must be checked with regard to accuracy! Inexactnesses of a

scale of e.g. 10 % lead automatically to a deviation of the seed quantity of the same percentage.

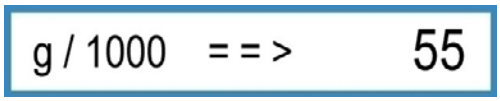
6.3 Calibration test in accordance to calibration menu 2

Press calibration key 

, to reach the calibration menu which has been chosen in the adjustment menu. Now it is possible to get stepwise through the menus for entering the thousand grain weight, seed rate per m², germination in % and gear box setting.

After the first press of the calibration key the entering menu of the thousand grain weight is reached. All chosen values and adjustments will be saved respectively. confirmed after pressing the calibration key at the same time.

6.3.1 Entering the thousand grain weight



Enter the thousand grain weight of the corresponding seed in gram, e.g. 55 and confirm.

6.3.2 Entering the seed rate in seed / sqm

Enter seed/sqm, e.g. 350 and confirm.

6.3.3 Entering the germination

Enter the germination of the seed, e.g. 95 % and confirm.

The seed rate in kg/ha appears, which is calculated automatically out of the thousand grain weight, the seed rate = seed/sqm and the germination.

With the example with the thousand grain weight of 55g/1000, 350 seed/sqm and the germination of 95 %, the required seed rate of 202,1 kg/ha is calculated.

By means of pressing the calibration key once again the seed rate will be confirmed.

Attention!

If it is not required to seed this exactly calculated seed rate, but another seed rate in kg/ha, then the delete key 

must be pressed for 2 seconds to delete the indicated value. After that enter the new desired seed rate in kg/ha and confirm.

If it is required to enter directly the seed rate in kg/ha, the values for the thousand grain weight, the seed rate in seed/sqm and the germination must each be set to zero respectively 100% by pressing the delete key. After that enter the desired seed rate in kg/ha into the indication 

, e.g. 202,1.

6.3.4 Entering the gear box adjustment before the calibration test

Enter the gear box adjustment in accordance to the seed table respectively the real adjusted gear box for the first calibration test, e.g. 60, when the gear box is on 60, then confirm the entering. The indication 

appears.

When the seed wheels are not filled, the calibration tray must be brought into position and the drive wheel turned until the seed wheels have turned at least 10 times.

When the seed wheels are filled, empty the calibration tray, bring it into position again and press calibration test again. The indication for start of the calibration test appears.

6.3.5 Start calibration test

When this indication appears the start key 

must be pressed. Now the indication for counting the pulses and the field size concerned appears on the display.

6.3.6 Carry through the calibration test

Now the drive wheel must be turned until the calibration tray is filled sufficiently. Stop drive wheel and

press the calibration key afterwards. The indication with the expected calibration quantity appears, but rounded to 100 g respectively 1000 g.

6.3.7 Weighing and entering the calibration test

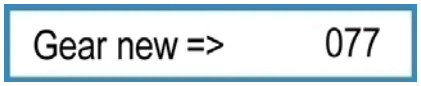
The calibration test must be weighed and the result in g entered by means of the rotary switch, e.g. 3366 g.

After that press the calibration key again.

The indication shows the seed quantity in kg/ha, which would be sown with the current machine adjustments, e.g.

That is not enough as the example says that 202,1 kg/ha should be sown.

6.3.8 Adaptation of the gear box adjustment

The calibration key must now be pressed again. The indication shows a calculated suggestion for the gear box adjustment, with which it is expected that with the next calibration test a weight of 4040 g will be calibrated, e.g. 

Correct the gear box adjustment as suggested, e.g. from 60 to 77.

Attention! For the now required calibration test, the electronic seed drill control takes it for granted that the adjustment corrections of the gear box have been carried through.

Press calibration key and carry through the calibration test, and that as described from the section „Entering the thousand grain weight“ on. First when the calibration test deviates not more than 2 % from the desired result, no new gear box adjustment will be suggested. The display shows the following indication

. The machine is adjusted correctly.

Deviations of up to 2 % will be allowed by the electronic seed drill control. When this deviation is too much, carry through a further calibration test to get closer to the desired seed quantity.

If a gear adjustment is calculated, which is not possible, first the indication 

appears and then e.g. 

.

This shows that the maximal possible gear adjustment of 150 is exceeded.

Depending on the seed wheel version and sown seed, either the fine seed wheels or the big seed wheels must be switched on additionally or a lower seed quantity must be entered in seed/sqm or kg/ha.

See also operating instructions of the seed drill.

Attention: After changing the gear box adjustment or after switching on or off seed wheels a new calibration test must always be carried through.

For weighing the calibration test a calibrated scale may only be used. Also the LEMKEN scale must be checked with regard to accuracy! Inexactnesses of a scale of e.g. 10 % lead automatically to a deviation of the seed quantity of the same percentage.

7 ADJUSTMENTS DURING OPERATION

7.1 Switch off tramline switch

Therefore press Stop key 

once. The light-emitting diode of the stop key is lighting and shows, that the tramline switch is switched off. The display shows a P behind the tramline indication.

7.2 Switch on tramline switch

Press stop key with light-emitting diode once, to switch on the tramline switch again. The light-emitting diode does not light anymore, the tramline switch is switched on again.

7.3 Switching forward or backward the current tramline

Press plus key to switch the current tramline forward.

Press minus key to switch the current tramline backward.

8 HECTARE MENU

Press hectare key to get into the hectare menu. Now by means of repeated pressing of the hectare key, each hectare counter can be called up.

Hectare counter for the field

Daily hectare counter

Yearly hectare counter

Total hectare counter

With the exception of the total hectare counter all indicated values can be deleted by means of pressing the delete key 

; all hectare counter are set then to 0 again.

To delete a single value of the hectare counter the delete key must be pressed for different periods of time.

To delete the value for the field: one second

To delete the value for the day: three seconds

To delete the value for the year: five seconds

9 INFO MENU

By means of pressing the Info key  the information menu will be reached. In this menu all machine conditions can be shown one after the other by means of pressing the Info key.

9.1 Metres driven since last machine track relaying

m S1 (G):	0040 m

Display of the metres driven after the last machine track relaying

The last listed display is then important if you stop on the field and no longer know whether the machine track switching has switched or not. If you are approx. 400 m from the beginning of the field and approx. 40 m from the last stopping point and in the display

m S1 (G):	0040 m

it is shown that the machine track switching has switched further.

Instead, in the display

m S1 (G):	0400 m

the machine track was switched further for the last time to the headland.

9.2 Metres driven since switched machine track

m traml.:	0140 m

With this display and the knowledge of the processed lay lengths and working width, you can determine at which point of the field a machine track has been laid.

9.3 Working speed

km/h:	09,8

Display of the current slip-dependent working speed

9.4 Error messages and machine indications

9.4.1 Error messages

With a malfunction the display shows an error message, e.g.

DEFECTIVE FUSE

At the same time an acoustic signal sounds. By means of pressing the delete key C an alarm will be confirmed. The top light-emitting diode lights. This signalizes that there is still a failure. Where the failure can be found, can be learned from the following part of the Info menu.

With empty hopper the error message

Hopper empty

appears. By means of pressing the delete key the alarm will be confirmed. Until the hopper is filled again the upper light-emitting diodes are lighting at the same time.

Failure A11: 1	Hopper alarm
Failure A12: 1	Alarm fuse
Failure A13: 1	Intermediate shaft is stopped, but it must turn
Failure A14: 1	Intermediate shaft turns, but it must be stopped
Failure A15: 1	Hydro accumulator is empty, it must be refilled
Failure A16: 1	Drive wheel does not turn with lowered seed drill
Failure A17: 1	STOP-key is pressed with lifted seed drill

1 = failure, but not solved

0 = no failure

9.4.2 Fuses

The condition of each fuse will be indicated one after the other.

Fuse F3: 1	Function of fuse F3
Fuse F4: 1	Function of fuse F4
Fuse F5: 1	Function of fuse F5
Fuse F6: 1	Function of fuse F6

1 = fuse is ok

0 = fuse is defect

9.4.3 Voltage

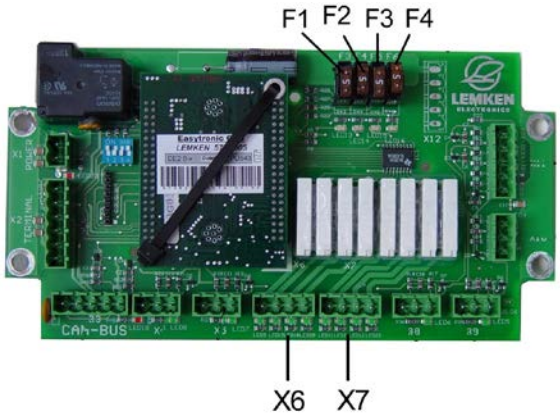
The current voltage will be indicated

Battery: 12.0 V

9.4.4 Motors and valves

The condition of the motors and valves can be read from the display. The indication shows the existing voltage at the pins 1 to 8 of the sockets X6 and X7 from the left to the right side.

Outp.: 10100000

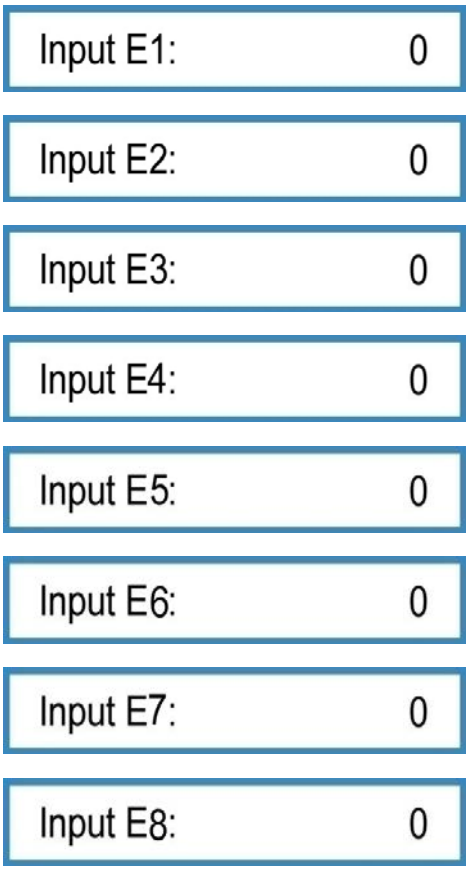


0 = mass

1 = 12 V power

9.4.5 Sensors

The function of the sensors can be checked.



Implement sensor

Gear box sensor

Intermediate shaft sensor

Hopper sensor

Not used

Not used

Sensor for pressure switch for hydro accumulator

Sensor for pressure switch for track marker

0 = no signal

1 = signal

000 = no pulse counted

e.g. 075 = pulses counted

The sensors E1 to E3 give a signal, when they have contact to a metallic thing (distance approx. 2 mm). The sensor E4 (hopper sensor) gives a signal, when there is no contact to seed.

10 SOWN SEED QUANTITY

Press seed key  and the sown seed quantity will be indicated, which has been sown since the last delete of the indication.

For setting the kg-counter to zero the delete key  must be pressed for 2 seconds.

11 WORKING SPOT LIGHTS

Press function key F5 to reach the menu for switching on and off working spot lights.

Working spot lights switched off

Working spot lights switched on

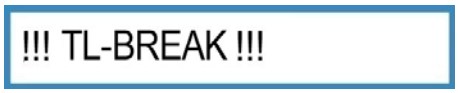
12 STOP KEY

The tramline switch will be interrupted when the stop key 

is pressed. The display shows a P 

This is recommended, when the seed drill should be filled or the combination should be lifted with a malfunction and a tramline switch should be prevented.

With cut off tramline switch due to a pressed STOP-key 

an alarm appears 

when the implement is lifted.

By pressing the delete key 

this alarm can be confirmed.

This alarm can be switched on and off in the adjustment menu.

When the operation terminal will be switched off and on again the alarm will be switched on again automatically.

13 TRAMLINE SWITCH

Always when the tramline sensor has contact with the pulse pick-up, e.g. with lifted seed drill, a G appears on the display. The current tramline

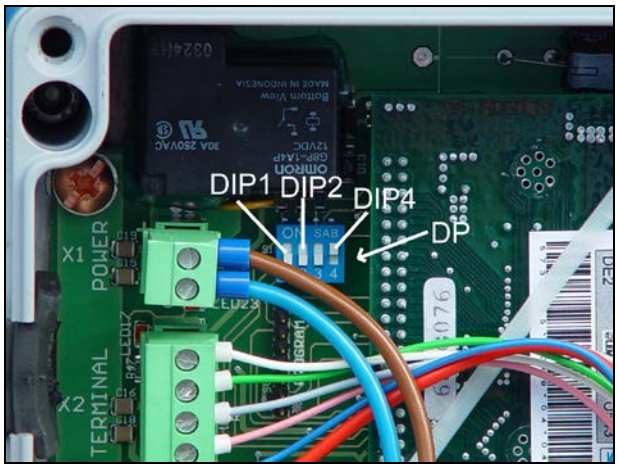
will be switched forward.

At the same time a short acoustic signal sounds. When the tramline will be switched an acoustic interval signal sounds. Additionally the large light-emitting diode lights.

In combination with a pressure switch for track markers the tramlines will be switched further only when the track marker is folded-in.

14 ALIGN THE SEED DRILL CONTROL

14.1 General Instructions



Depending on the working width and the type of implement, the seed drill control has been adjusted correspondingly in the factory. Therefore the DIP-switches (DP) have been set to ON or OFF – see section “Adjustment of the DIP-switch”.

But if the failure message !System failure!, Failure: A2 or Failure: A3 appears, this will point to an adjustment failure. Then the position of the DIP-switch must be checked.

If e.g. an unsuitable working width has been entered in the entering menu, this leads also to failure messages. The faulty entering must be cancelled.

14.2 Adjustment of the DIP–switch

The switch (DIP1) must be adjusted in accordance to the working width as follows:

Working width:	**2,5 m**	**3,0m**	**4,0 m**	**4,5 m**
	OFF	OFF	ON	ON

The switch (DIP2) must be adjusted in accordance to the type of implement:

Saphir 7	**Solitair 8**
ON	OFF

The position of the DIP-switch 3 is without meaning.

The switch (DIP4) must be set as follows:

Socket X3 used	**Socket X3 not used**
OFF	ON

The above picture shows the switches

DIP1 on OFF

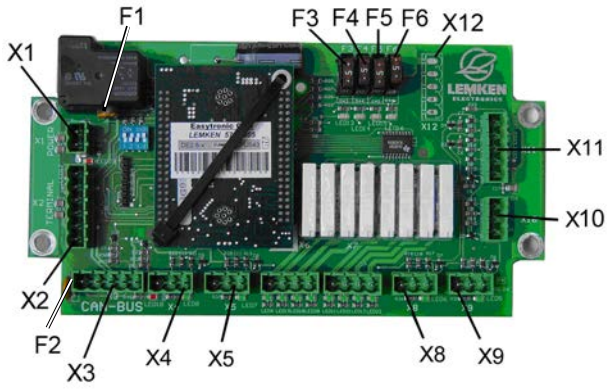
DIP2 on OFF

DIP3 on OFF and

DIP4 on ON.

This is the DIP-switch adjustment for a 3 m wide Solitair 8, with non-used socket X3 in the collecting box.

15 DISTRIBUTOR BOX



The circuit board with the connector sockets, fuses and LEDs is located in the distributor box.

X1 = Connector socket for power supply

X2 = Connector socket for operating terminal

X3 = Connector socket for CAN BUS

X4 = Connector socket for additional pressure switch (track marker)

X5 = Connector socket for pressure switch for hydraulic accumulator (advanced marking)

X6 = Connector socket for machine track switching and advanced marking

X7 = Connector socket for partial width switching, 2 partial widths, harrow, work light

X10 = Connector socket for fill level sensor

X11 = Connector socket for sensor wiring harness

X12 = Mounting slot for connector socket for partial width switching, 4 partial widths

X8 und X9 = not occupied

F1 = Thermal fuse, control module

F2 = Thermal fuse, sensor voltage

F3 to F6 = Fuses

16 FAILURE ELIMINATION

Failure and warning message	Description	Failure elimination
Hopper empty	This alarm appears, when the alarm „alarm hopper“ is switched on and the hopper sensor cannot recognise any seed.	Fill in seed! Check hopper sensor!
Half machine?!	If a straight tramline rhythm is calculated after entering the width of the following implement, this will point out that the half machine width should be switched off for the first track.	When the half machine is switched off for the first track, all closed slides must be opened again afterwards!
Failure: A1	Incorrect width of the following implement has been entered, as it is not divisible through the working width of the seed drill.	Enter suitable width.
!!!Part width!!!	If a part width is switched off and the tramline switched further, this will point out that the part width is still switched off.	Switch on switched off part width again!
Failure: A2	The working width does not suit to the adjustment of the switch DIP1.	Check and correct position of the switch DIP1!
Failure A11: X	Shows, whether there is a hopper alarm. When the alarm has been confirmed and the reason of the malfunctions has not been solved, this message will still be indicated.	Refill seed! Check hopper sensor!
Failure A12: X	Shows, whether a fuse is defective. When the alarm has been confirmed and the reason has not been solved, this message will still be indicated in the info menu.	Replace fuse!
!!System failure!!	After switching on the seed drill control, it shows that the adjusted type of implement does not suit to the switch position DIP2.	Check and correct position of the switch DIP2!

Failure and warning message	Description	Failure elimination
Failure: A3	After entering changes it shows, that the type of implement does not suit to the switch position DIP2.	Check previously made adjustments and correct if required! Check and correct position of switch DIP2!
Seed wheels++	This alarm appears, when the calibration test suggested a gear adjustment of > 150.	Switch on additional seed wheels or reduce seed quantity kg/ha and carry through new calibration test!
!TL s.wheel STOP!	The intermediate shaft does not turn, although no tramlines should be made.	Check lift magnet or clutch and replace if required. Check sensor of the intermediate shaft and replace if required.
!Alarm TL!	The intermediate shaft is still turning, although tramlines should be made.	Check lift magnet or clutch and replace if required. Check sensor of the intermediate shaft and replace if required.
Fill HY-Accu.	This alarm appears, when the „Alarm HY-Accu.“ is activated und the pressure switch of the hydro accumulator of the pre-emergence marker tells that the hydro accumulator is empty.	Refill hydro accumulator.
Failure A13: X	Shows whether the failure „!TL s.wheel STOP! is existing. When the alarm has been confirmed and the reason of the malfunction is not solved, the alarm will still be indicated in the info menu.	Check lift magnet or clutch and replace if required. Check sensor of the intermediate shaft and replace if required.
Failure A14: X	Shows whether the failure „!Alarm TL!“ is existing. When the alarm has been confirmed and the reason of the malfunction is not solved, the alarm will still be indicated in the info menu.	Check lift magnet or clutch and replace if required.
Failure A15: X	Shows whether the failure „Fill HY-Accu.“ is existing. When the alarm has been confirmed and the reason	Refill hydro accumulator. Check pressure switch.

	of the malfunction is not solved, the alarm will still be indicated in the info menu.	
Failure A16: X	Shows that the drive wheel does not turn, respectively the gearbox sensor shows no pulses.	Check function of the drive wheel. Check sensor at the gear-box and replace if required.
Failure A17: X	STOP-key is pressed, the tramline switch is switched off.	Press STOP-key to activate the tramline switch again, e.g. after filling the hopper of the seed drill
Wrong method	Rhythm of the tramline switch is une-ven	Choose tramline method 1
!Cast wheel STOP!	The gearbox sensor does not get any pulses during work	Check drive wheel and drive shaft between gearbox and drive wheel. Check gearbox sensor
!!!TL-BREAK!!!	The tramline switch is switched off	Press break key to switch on the tramline switch, if it is required.

17 SERVICE AND SPARE PARTS

When spare parts are required for service or repair work, please state the version of this electronic seed drill control 

as well as the software date.

The current software date will be indicated, when the operation key will be pressed for 7 seconds in the operation menu.

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