LEMKEN

Operating Instructions

for

electronic seed drill control

Easytronic

Version 2.0

GB

CE Safety is our concern!

Part No.: 175 3741
3/08.04

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DEFINED USE

- Please familiarize yourself with the LEMKEN implement and its operations before putting the implement to work. Therefore use this instruction book with the „General Health- and Safety precautions“!
- Under „defined use“ the manufacturer’s prescribed operation-, maintenance- and repair conditions are to be adhered to!
- The electronic LEMKEN-seed drill control Easytronic may only be operated, maintained and repaired by such persons who have been made acquainted with it and who have been advised about the dangers!
- The applicable accident prevention advice as well as the generally accepted safety technical, working, medical and road traffic rules should be adhered to!

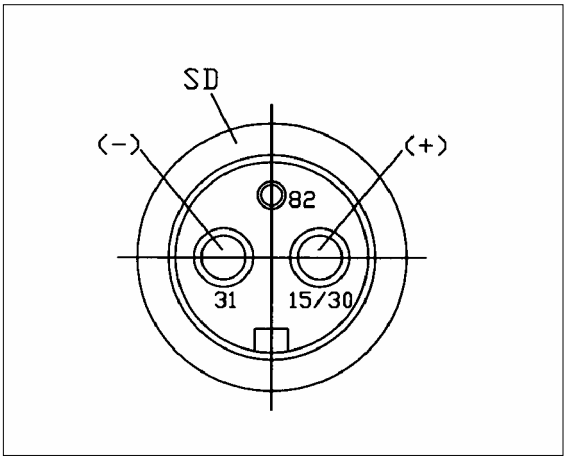
CONTENTS

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 protection

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.

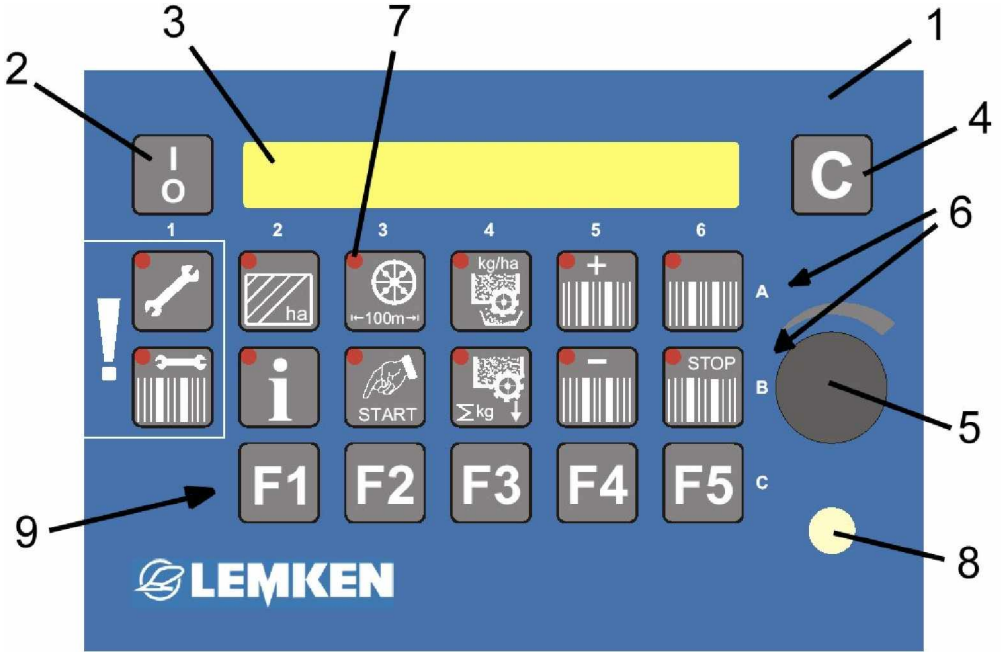
2 BASE INFORMATION

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

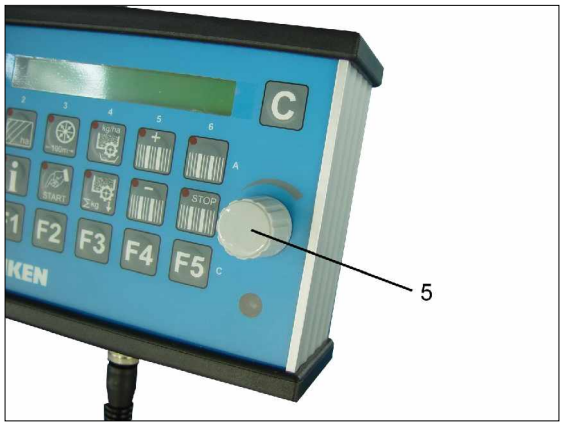
By means of a repeated short press of the menu key concerned, you will be guided through the chosen menu. If it is required to do something different, it is pointed out separately, e.g. “press 5 seconds” or “Press START”. Previously chosen values or adjustments will be saved at the same time.
When by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

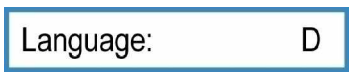
By means of leafing further through each menu or by means of pressing the operation menu key  chosen values and adjustments will be saved.
When in the following part of the operating instructions it is spoken about „confirming“ or “saving“, that means the leafing through in a menu or the press of the operation menu key.

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 stop key (approx. 5 seconds) until the menu changes has been done. Therewith the tramline switch will be switched off at the same time. Press stop key once again until the menu “Language” appears.



Choose required language by means of the rotary switch (5), e.g. GB 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

Rhythm key for the automatic determination of the tramline rhythm after entering the working width of the following implement

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

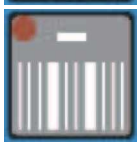
Calibration key for the 100 m calibration in cm per pulse

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

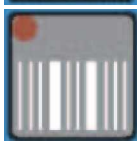
Calibration key for menu guided and computer-controlled calibration test

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

F1 to F5

Function keys e.g. for calling up the switch device of the width sections, when a switch off device for the width sections is fitted.

2.9 Miscellaneous

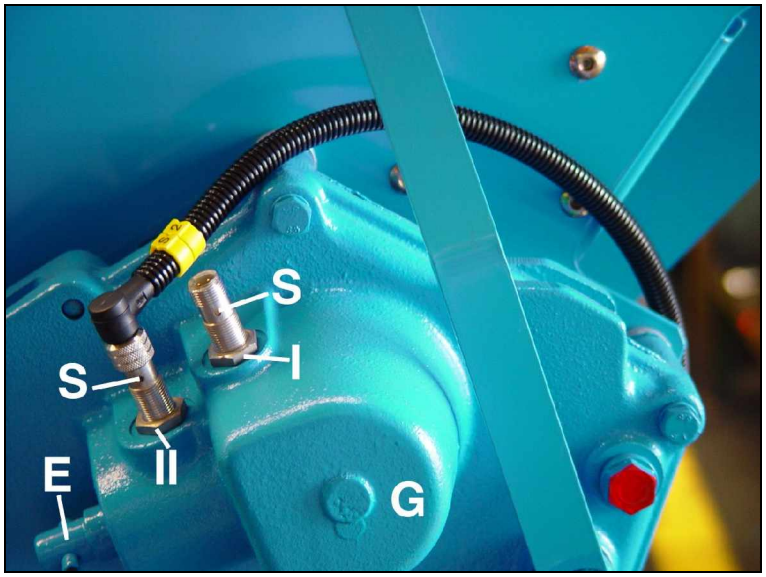
2.9.1 Wheel circumference in cm per pulse

For measuring the distance, the pulses will be counted by means of the sensor (S). These pulses will be generated by a pulse pickup in the gear box (G).
In the gear box (G) two pulse pickups are provided with 22 teeth or 6 teeth.
Depending from the fitting position of the sensor (S), 6 pulses or 22 pulses will be counted per revolution of the entrance shaft (E). Up to 30.06.2004 the sensor (S) has been fitted to the front position (I). For this position cm / pulse 07.30 cm has been entered in the factory. Since 01.07.2004 the sensor (S) has been fitted in the rear position (II). For this sensor position cm /pulse: **26,74** cm has been entered.
Attention! It must be ensured that the following is entered:

Sensor in position (I) cm / pulse 07.30 cm

Sensor in position (II) cm /pulse: **26,74** cm

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



3 MENU OVERVIEW AND DISPLAY INDICATIONS

3.1 Menu overview 1 and display indications

Adjustment menu

Alarm fan:	0
RPM (min.):	2700
RPM (max.):	3600
Alarm hopper:	0

(press for 5 seconds)

cm /pulse:	**26,74** cm
Rows in track:	04
No. returns:	01
No. coulters:	24
W.-width:	3,0 m

Rhythm key

Bout width:	15 m

Hectare menu

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

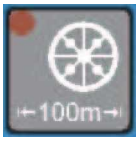
Stop key

Tramline:	03 : 05 P

Seeding key

kg:	0000,0 kg

Menu: 100 m calibration



Start position ?	
Press START	
Pulses:	0000

Drive 100 m

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

Operation menu

Tramline:	03 : 05

3.2 Calibration menu

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
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.

3.3 Menu for the indication of the implement conditions

RPM: 3200	Current fan RPM (not switched tramline sensor)
m traml.: 0040 m	Driven meters after last tramline switch
Failure A10: 0	Fan alarm, failure not yet got rid of *
Failure A11: 0	Hopper alarm, hopper not yet filled *
Failure A12: 0	Alarm fuse, fuse not yet exchanged *
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	Condition of the motors and valves
Input E1: 0	Implement sensor
Input E2: 0	Gearbox sensor
Input E3: 0	Fan sensor
Input E4: 0	Hopper sensor

* = The indication got off, when the failure has been got rid off.

4 ADJUSTMENTS

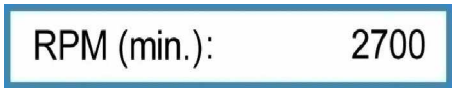
4.1 Adjustment menu

4.1.1 Alarm

In the adjustment menu the fan alarm and the hopper alarm can be switched on and –off. 0 = OFF! 1 = ON!
Additionally the desired minimum and maximum fan RPM limit can be adjusted, so that an alarm appears with too low or too high speed. This happens as follows:

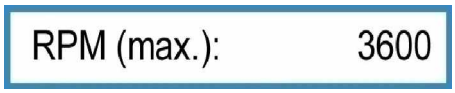
Press entering key to reach the entering menu

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



Choose minimum fan RPM between 2000 1/min and 2900 1/min and save! By means of pressing the delete key 

the value can be reset to the factory adjustment (2700 1/min).



Choose maximum fan RPM between 3000 1/min and 4000 1/min and save! By means of pressing the delete key 

the value can be reset to the factory adjustment (3600 1/min)

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

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:

Alarm hopper: 0	From this menu press the entering key  for 5 seconds to reach the entering menu for the factory adjustments.
cm /pulse: **26,74** cm	26,74 cm/pulse is the factory adjustment for the wheel circumference in cm per pulse, which includes a wheel slippage. This value will change slightly after a 100 m calibration. See also section “Wheel circumference in cm per pulse”.
Rows in track: 04	Number of rows, which will be switched off when making tramlines.
No. returns: 01	Number of return pipes, which will permanently leaded back to the hopper.
No. coulters: 24	Number of all seeding coulters of the seed drill.
W.-width: 3,0 m	Working width of the seed drill in meters. If a not possible working width is entered, the indication Failure: A2 appears.

If required the values 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“.

If there is insecurity, the correct entering values can be learned form the following table:

Type	Working width (cm)	Row distance (mm)	No. of distributors / exits per distributor	No. of coulters	Rows in track					No. of return pipes
					0	2x1	2x2	2x3	2x4 4x2	
Solitair 8/300	300	125	2/12	24	0	2	4	6	8	0
Solitair 8/300	300	150	2/10	20	0	2	4	6	8	0
Solitair 8/300	300	175	2/9	17	0	2	4	6	8	1
Solitair 8/400	400	125	4/8	32	0	2	4	6	8	0
Solitair 8/400	400	150	4/7	27	0	2	4	6	8	1
Solitair 8/400	400	175	3/8	23	0	2	4	6	8	1

4.2 Entering the tramline rhythm

Press rhythm key  to reach the tramline menu. The indication

Bout width:	00 m

appears.

Here with 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 indication for entering the width of the following implement

Bout width:	00 m

.

Widths, which are 2, 3, 4 up to 20 times wider than the working width of the seed drill can only be entered.
If a straight rhythm as e.g. 4, 6, 8 a.s.o. is calculated, the indication

Half machine?!

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

Tramline:	03 : 05

or

Tramline:	03 : 06

When the tramlines should not be switched off, a width of the following implement of 00 m must be entered. The operation menu shows the indication:

Tramline:	00 : 00

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:

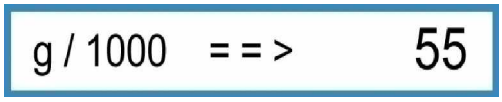
- The desired seed rate can be entered in grains per square meter or kilo per hectare.
- For supporting an optimal seed rate, the thousand grain weight and the germination of the seed can be taken into consideration in the calibration menu.
- The calibration test can be carried through regarding to an area of 1/100 ha, 1/50 ha, 1/40 ha, 1/25 ha and 1/10 ha.
- 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

Press calibration key 

, to reach the calibration 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 resp. 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 an other 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 by pressing the delete key. After that enter the desired seed rate in kg/ha into the indication 

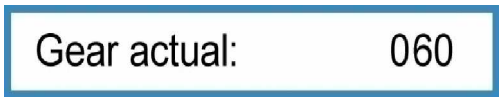
, e.g. 202,1.

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 resp. 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.

Gear new =>	077

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.

Attention: After changing the gear box adjustment 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.

Tramline:	03 : 05 P

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.

Field:	ha	Hectare counter for the field
Day:	ha	Daily hectare counter
Year:	ha	Yearly hectare counter
ha:	ha	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.

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 Fan RPM

RPM:	3200

Indication of the current fan RPM

9.2 Driven meters since the last tramline switch

m traml.:	0040 m

Indication of the driven meters after the last tramline switch

The above indication is then important, when stopping the machine during work and it is not known whether the tramline has switched or not.

If the distance to the field end amounts to ca. 400 m and ca. 40 m to the last stop and the display shows

m traml.:	0040 m

then it is indicated that the tramline has switched forward during the last Stop.

If the display shows

m traml.:	0400 m

then the tramline has switched last on the headlands.

9.3 Error messages and machine indications

9.3.1 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 top light-emitting diodes are lighting at the same time.
When the fan turns too fast or too slowly the current indication of the fan RPM appears. After that the fan RPM must be corrected.

Failure A10: 0	Fan alarm, failure not yet solved *
Failure A11: 0	Hopper alarm, hopper not yet filled *
Failure A12: 0	Alarm fuse, fuse not yet replaced *

* This indication disappears first when the failure is solved.

1 = failure, but not solved
0 = no failure

9.3.2 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

9.3.3 Voltage

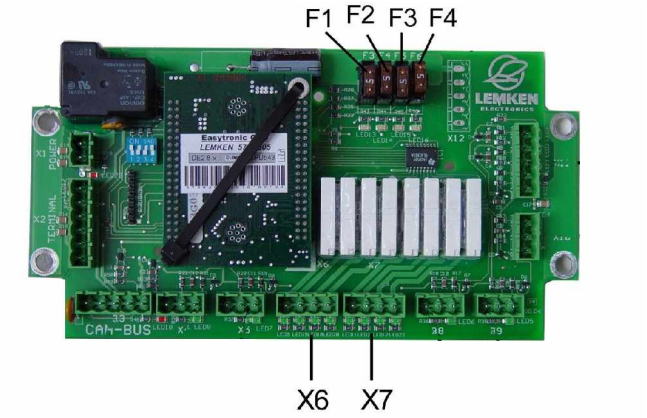
The current voltage will be indicated

Battery: 12.0 V

9.3.4 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

9.3.5 Sensors

The function of the sensors can be checked.

Input E1: 0	Implement sensor
Input E2: 0	Gear box sensor
Input E3: 0	Fan sensor
Input E4: 0	Hopper sensor

0 = no signal
1 = signal
000 = no pulse counted
for example 075 = pulses counted

The sensors E1 to E3 give a signal, when they have contact to a metallic thing (distance apprs. 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 SWITCH OFF WIDTH SECTIONS

This device is available as accessory. For calling up the menu for switching the width sections either the function keys F1 and F2 or the function keys F1 to F4 must be pressed (according to the version).
If no device is fitted, the following display will be indicated when one of the function keys is pressed.

By means of pressing the corresponding function key F1 to F4 the menu will be called up; by means of the rotary switch the called up width section will be switched on or off and by means of pressing the operation key the setting will be confirmed.

0 = closed part width

1 = opened part width

When a part width is closed, the light-emitting diode lights.
If after the first pass the seed drill will be lifted, the indication

appears. This shows that at least one width section is closed, which should be opened again, if required.

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.

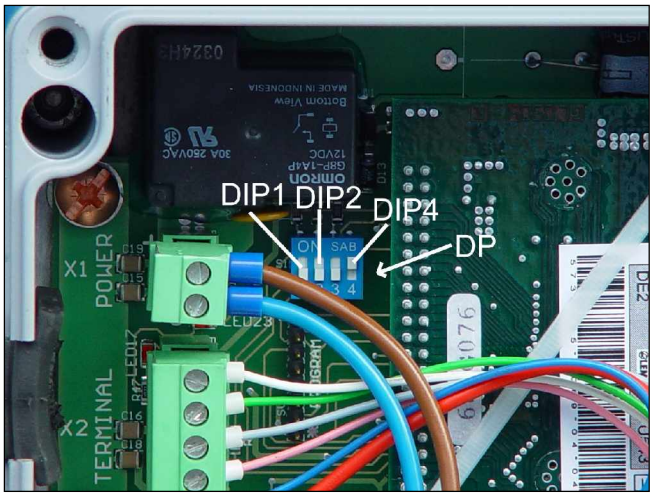
13 TRAMLINE SWITCH

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.

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 COLLECTING BOX

The collecting box contains the p.c.b. with the plug sockets, fuses and light-emitting diodes.

X1 = plug socket for power supply

X2 = plug socket for operating terminal

X3 = plug socket CAN-BUS

X6 = plug socket for tramline switch and pre-emergency marker

X7 = plug socket for switch off width section, 2 width sections

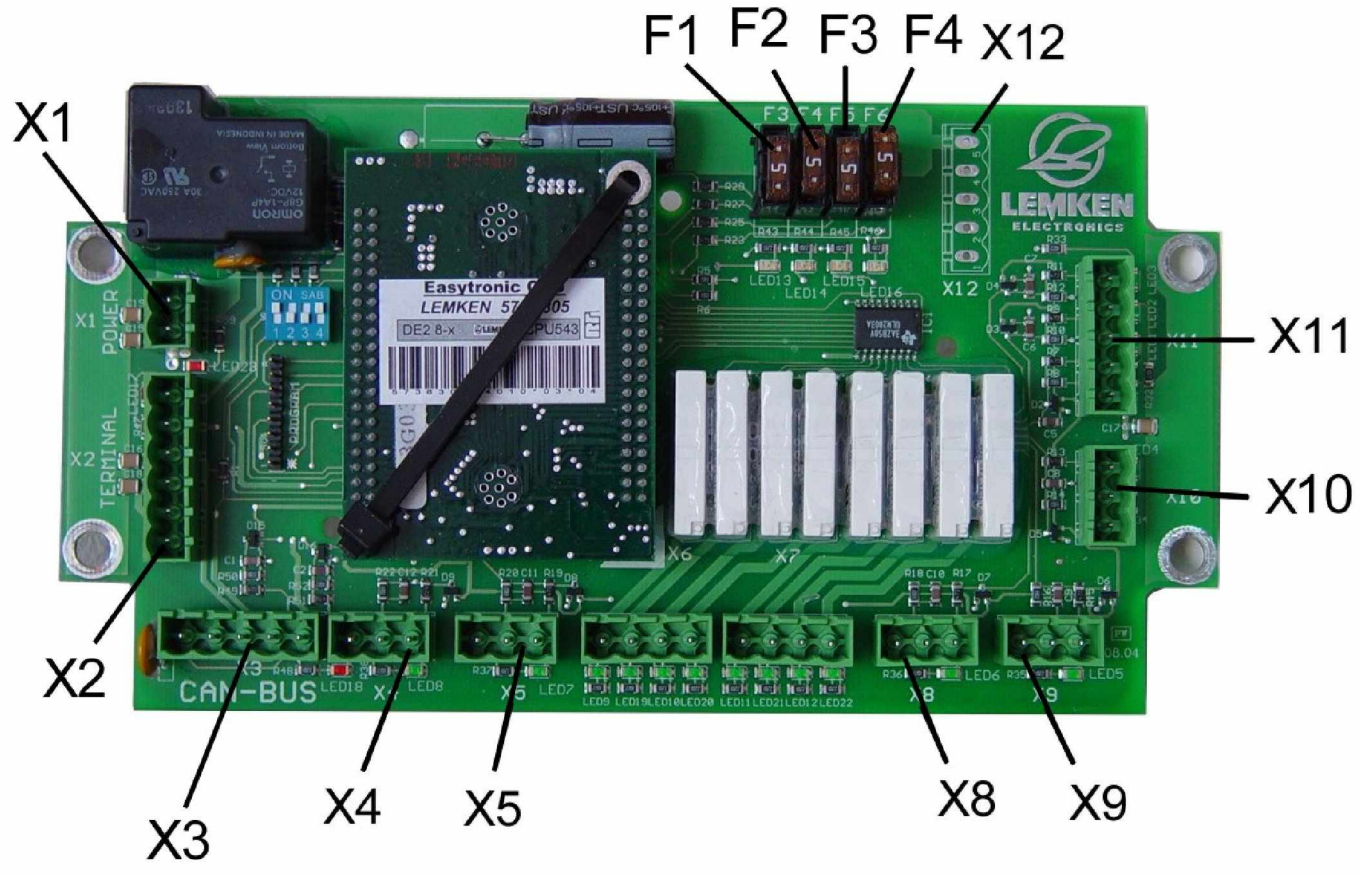
X10 = plug socket for level sensor

X11 = plug sensor for sensor harness

X12 =slot for plug socket for switch off width section, 4 width sections

X4, X5, X8, X9 = not occupied

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!
RPM: xxx	This alarm appears, when with switched on alarm, the RPM limit will be exceeded or remained under. With a RPM >4000 RPM the alarm appears although the alarm is switched off.	Correct fan RPM, see operating instructions! Check fan 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 A10: X	Shows in the info menu, whether there is a fan RPM failure. When the alarm has been confirmed and the reason of the malfunction is not solved, this message will still be indicated.	Correct fan RPM, see operating instructions! Check fan sensor!
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 and warning message	Description	Failure elimination
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: 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 and carry through new calibration test!

17 NOTES

To ensure a continuously updating of the technical features, we reserve the right to modify the design, equipment and technique.