Operating Manual

ELS4 controller

(Electronic limit switch for max. 4 lines)

Automatic height limiting for feed lines in broiler breeder houses

Manual Code No: 99-97-2385
Edition: 09/2009 GB

Big Dutchman International GmbH
Post-box 1163
49360 Vechta
Tel. 0 44 47 / 801 – 0
Fax 0 44 47 / 801 – 237
E-Mail: big@bigdutchman.com
www.bigdutchman.com

Big Dutchman.

Table of contents

Operating manual

These instructions relate to software version 2.0

Edition: 27.03.2009

1 Operating the control unit

The following illustration shows the schematic representation of the control unit for height control.

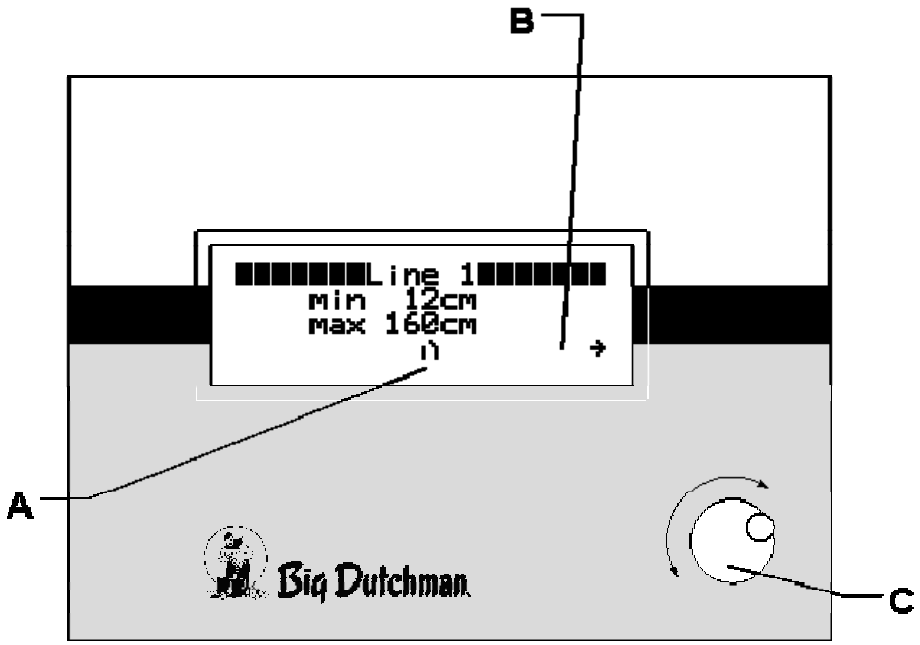


Fig. 1: Schematic representation of the control unit

The **control knob (C)** enables the visible menu items and nominal values to be selected on the **Display (B)** (see Fig. 1).

In order to do so, the cursor (flashing black rectangle) can be positioned to the desired menu item or nominal value by means of turning the control knob. After the control knob is pressed, the selected menu item is opened or you can have the option of changing the correspondingly selected nominal value, for example, the maximum or minimum nominal height for feed line 1.

The menu is hierarchically structured. After selecting one menu item, you open the next lower menu level. You can navigate within a menu level by using the **arrows** (← →) at the bottom row of the display. Selecting the **"return"** icon – ↰ – (see Fig. 1 A) brings you back to the next higher menu level.

2 Configuration

2.1 Start screen

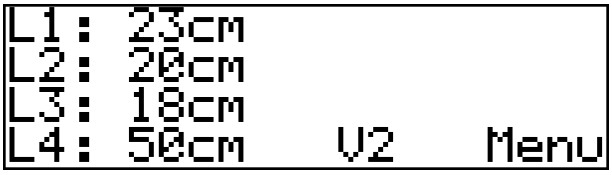


Fig. 2: Start screen

Fig. 2 shows the start or default display for the height controller. It displays the current distance of feed lines 1 (L1) to 4 (L4) to the concrete slab.

Selecting menu item Menu serves to open the main menu.

The system switches back to the start screen automatically if no entry is made for more than 60 secs., regardless of the displayed screen.

2.2 Main menu

Fig. 3: Main menu

The main menu offers the option of quickly undertaking changes to the nominal values. Furthermore, the configuration menu item enables you to configure the height controller. The cleaning menu item has to be selected in order to activate cleaning mode.

The "return" symbol – ↰ – brings you back to the start screen.

2.2.1 Nominal values

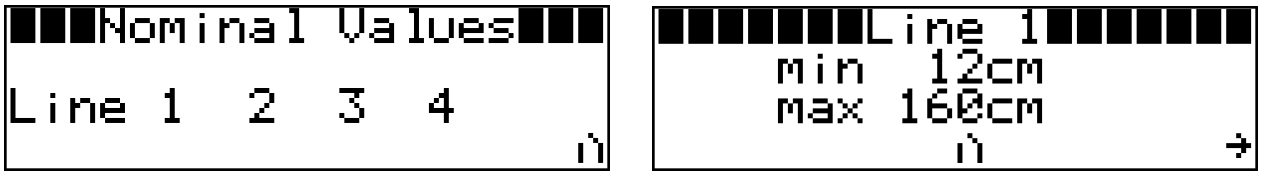


Fig. 4: Nominal values

The "nominal values" menu enables the values to be entered above which and below which the feed lines will be stopped. As can be seen in Fig. 4, lines 1 to 4 can be selected directly.

Value `min` stands for the lower limit and `max` stands for the upper travel limit.

The controller accepts nominal values in the range **from 0 cm up to maximum 999 cm**.

2.2.2 Configuration

The height controller is adapted to local site conditions by means of the "*configuration"* menu. The menu is subdivided into three sections (see Fig. 5).

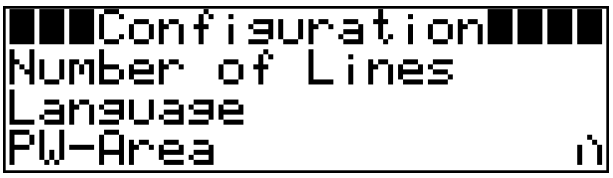


Fig. 5: Settings

The "return" symbol – ↩ – brings you back to the start screen in each case.

2.2.2.1 Number of lines

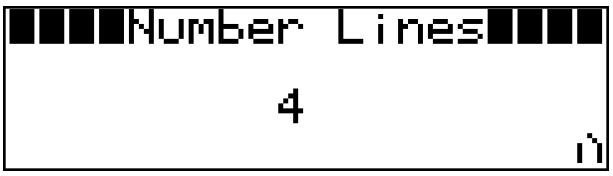


Fig. 6: Number of lines

The number of lines connected to the controller have to be entered into this menu.

The controller accepts nominal values in the range **from 1 up to maximum 4**.

The "return" symbol – ↩ – always brings you back to the start screen.

2.2.2.2 Language

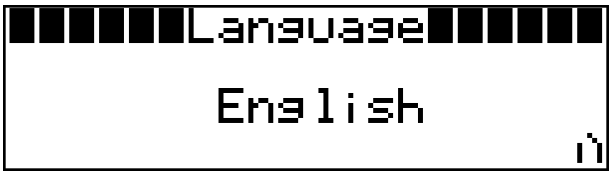


Fig. 7: Language

The "*Language*" menu enables the language of the menu to be changed.

The height controller can currently display the following languages:

- English
- German

The "return" symbol – ↰ – brings you back to the "*configuration*" screen.

2.2.2.3 PW-Area

Entering the password **7870** serves to open the "*PW-Area*" menu. This enables the feed lines to be selected individually for configuration under ("*Calibration*"). In addition, the default values for the nominal values can be reset from the "*Default Values*" menu.

Fig. 8: PW-Area

Calibration

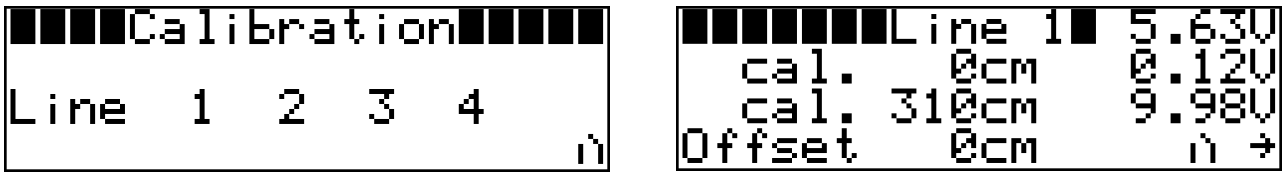


Fig. 9: Calibration

If the feedback signal potentiometer for the selected feed line is correctly connected to the height controller, then a slightly varying voltage will be displayed in the calibration menu in volts (V) (see for example Fig. 9: 5.63V).

In the first step, the lower limit for the feed line is calibrated. In order to do so, you should allow the corresponding feed line to move fully downwards. Then you select Calib. with the cursor in the second line of the display and press the control knob. The voltage value shown in the first row will subsequently be displayed at the end of the second row.

In the second step, the feed line is moved up to an arbitrary height. The distance between the feed line and the concrete slab must now be determined as accurately as possible. Afterwards, this

distance is entered in the feed line calibration menu in the second row as the calibrated height (see as example Fig. 9: `310cm`). Finally, you select `Calib.` with the cursor in the third row of the display and press the control knob. The voltage value shown in the first row will subsequently be displayed at the end of the third row.

This procedure must now be carried out for all of the feed lines.

Attention:

In order to guarantee the most precise deactivation level possible, a suitably large travel distance should be configured for the respective feed line; 200 – 300 cm.

Offset

It is possible that the feed line winches will continue to travel a short distance after being switched off by the automatic height control system. This can be explained by the heavy weight of the filled feed lines and the resulting mechanical inertia caused by this. For this reason, the controller display shows a 1 - 3 cm lower value than the preconfigured nominal value.

In order to avoid this, it is possible to enter an offset value, so that the controller switches the lines off correspondingly sooner.

Example: minimum nominal value = 20 cm; however, the minimum position on the display indicates 18 cm. In this case the offset value amounts to = 2 cm.

Attention:

The offset only applies to the minimum position of the feed lines!

2.2.3 Cleaning

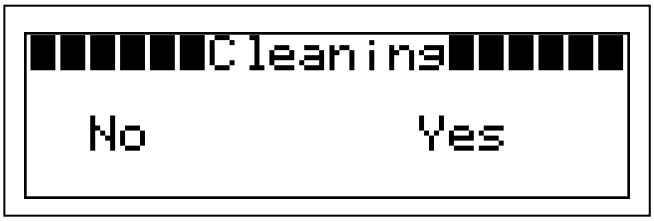


Fig. 10: Cleaning

If the cleaning function is activated in the "*cleaning*" menu item (`Yes`), then all of the internal relays will be activated and evaluation of the input signal by the feedback signal potentiometer is deactivated. In this case, the lines are only switched off by the limit switches or with the help of the manual switch.

After cleaning has been completed, the controller has to be reactivated via the "*cleaning*" menu item by selecting `No` in the "*cleaning*" menu.

Attention:

When cleaning mode is activated, automatic deactivation of the lines is undertaken *exclusively* via the limit switches on the lines or the additional manual switches on the subsidiary distribution point. For this reason, it is to be ensured at all times that the limit switches are correctly adjusted in order to avoid damaging the feed lines.

2.3 Parts list

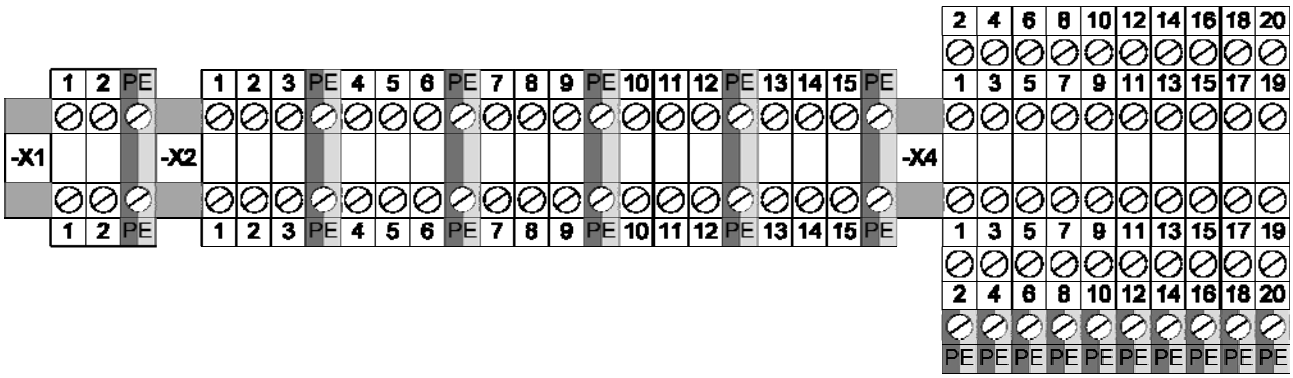
Code no.	Description
91-00-4183	Control unit ELS4 - automatic height limiting for max. 4 winches
91-00-2538	Potentiometer cpl per cable winch RW for ELS4

2.4 Spare parts

Code no.	Description
00-00-1288	Sticker: ELS4 vers. 1
60-43-5887	Housing MC135 cpl for WIN4/ELS4
91-00-2560	Control relay AT29 incl. ELS4 software

Appendix

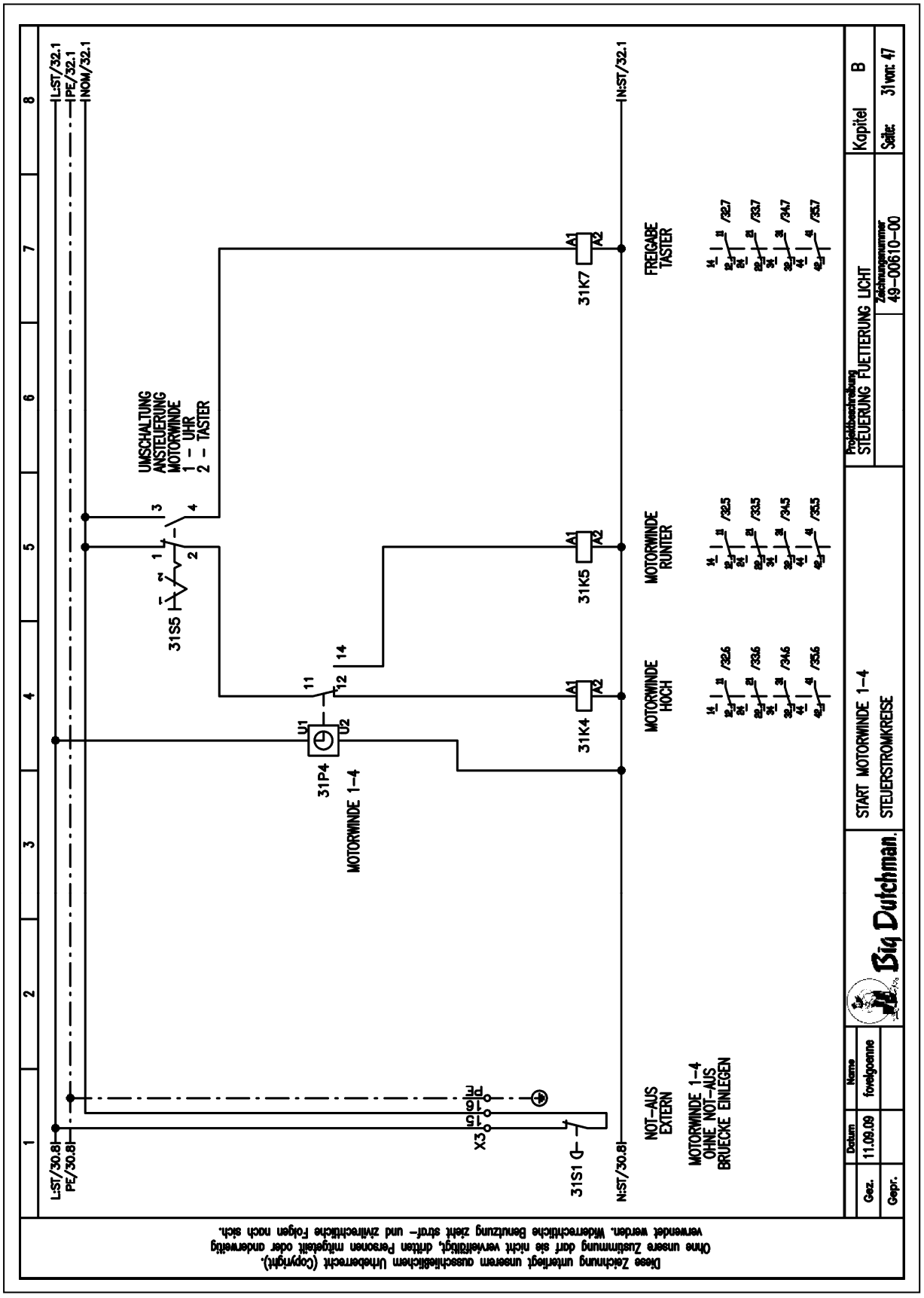
A Connection diagram



Terminal	Name / target	
Terminal strip –X1 | power supply		
1	L	
2	N	
PE	Protective ground wire	
Terminal strip –X2 | connection feedback signal potentiometer		
1	+ 10 V DC	– supply voltage for feedback signal line 1
2	0 - 10 V DC	– Feedback signal line 1
3	GND	– GND for feedback signal line 1
PE	Protective ground wire	
4	+ 10 V DC	– supply voltage for feedback signal line 2
5	0 - 10 V DC	– Feedback signal line 2
6	GND	– GND for feedback signal line 2
PE	Protective ground wire	
7	+ 10 V DC	– supply voltage for feedback signal line 3
8	0 - 10 V DC	– Feedback signal line 3
9	GND	– GND for feedback signal line 3
PE	Protective ground wire	
10	+ 10 V DC	– supply voltage for feedback signal line 4
11	0 - 10 V DC	– Feedback signal line 4
12	GND	– GND for feedback signal line 4
PE	Protective ground wire	
Terminal strip –X4 | Outputs		
1	NO switch contact feed line 1 - down	
2		
PE	Protective ground wire	

Terminal	Name / target
3	NO switch contact feed line 2 - down
4	
PE	Protective ground wire
5	NO switch contact feed line 3 - down
6	
PE	Protective ground wire
7	NO switch contact feed line 4 - down
8	
PE	Protective ground wire
9	NO switch contact feed line 1 - up
10	
PE	Protective ground wire
11	NO switch contact feed line 2 - up
12	
PE	Protective ground wire
13	NO switch contact feed line 3 - up
14	
PE	Protective ground wire
15	NO switch contact feed line 4 - up
16	
PE	Protective ground wire

B Example: Connection diagram for ELS4 with manually- / automatically circuit (time switch)



-continuation-

Example: Connection diagram of ELS4 with manually- / automatically circuit (time switch)