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OPERATING INSTRUCTION FOR LOAD WEIGHING CONTROL

LUPO 230V

LIST OF CONTENTS

1 Description

- The load weighing unit LUPO with an external load sensor controls and shows the load of a lift car and it meets the requirements of EN81 (14.2.5.1 and 14.2.5.2). The unit has three floating relays for switching minimum load, full load and over load. LUPO can be used for all types of lifts.
- The installation and the setting-up operation of LUPO are very simple and need only short time.
  No additional measuring tool is needed. The unit is state-of-the-art with improved and up-to-date electronic.
- The electronic is built in a plastic housing (IP54).
- The cable for the load sensor and the connection cable must be mechanical fixed and protected.

2 Specifications

- The load weighing unit LUPO is compact and a combination of electronic and (external) load sensor.
- The big advantage of LUPO is the simple and fast setting.
- **ADVICE:** The setting of the unit should be done after the safety gear test.
- Connection cable is used for the power supply and the electrical connection to the lift control. (not scope of supply)
- The proper operation can be influenced by:
  - Electromagnetic influences: door motor, contactors, …

3 Technical characteristics

electrical data:

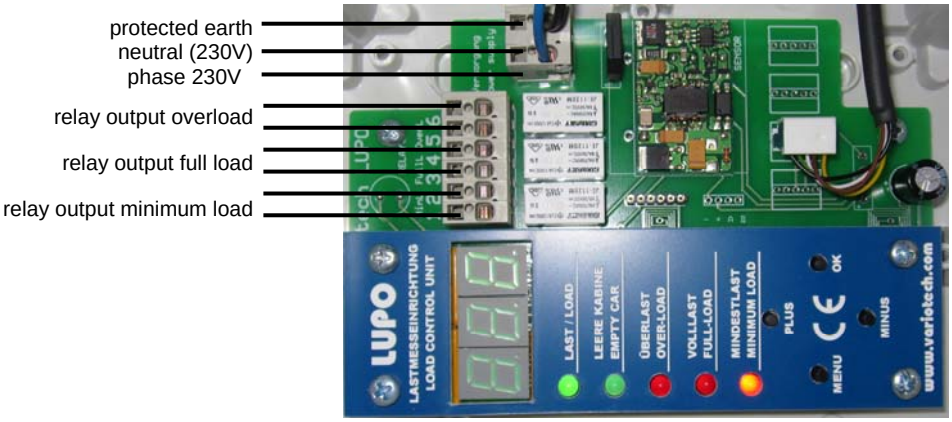
power supply:	230 V AC +/- 15%, 3VA
relay output for full load;	250V AC, 150 V DC, 1A,
relay output for overload;	250V AC, 150 V DC, 1A,
relay output for minimum load;	250V AC, 150 V DC, 1A,
Display for settings	7- segment Display (3 digits)
programming / setting	push buttons (Menu, Plus, Minus, OK)
display of thresholds	LED (red), lights if above thresholds

mechanical data:

dimensions	175x150x80mm
load	0,7 kg

4 Electrical connection

The load weighing unit needs a power supply of 230VAC.
There are 3 floating relay outputs for full load, overload and minimum load which can switch directly 250V / 1A.



Connecting plugs for 1 to 4 external pluggable load sensor,

5 Front panel

The display, LED and push buttons which are necessary to set and to put the load weighing unit into operation are on the front panel.

- The display shows the load of the car during the settings and goes into a sleep modus after 2 hours. This modus has no influence on the operation of the unit. By pushing the button „MENU“ the display will be on again and the settings can be changed.
- 2 green LED (load and the empty car), 3 red LED (thresholds full load, overload, minimum load)
- 4 push buttons for the settings

6 Operation

4 steps to put the unit into operation:

- mechanical installation (mounting guidelines)
- electrical installation (paragraph 4)
- automatically measurement of the empty car
- automatically measurement of the rated load

6.1 *Advice!!*

- The load weighing unit needs a power supply of 230VAC.
- After power on the green LED „load“ will be on. The unit has no power on/off switch.
- The unit needs 1 hour for thermal stabilisation after power on. The settings should not start before.
- During normal operation the green LED „load“ must be on. By pushing the button “menu” the various menus can be selected.
- The display with three digits can only display a maximum load of 990 (= 990kg). It is possible to use the unit for higher weight. If the lift has a rated load of more than 800 kg the entire values must be divided by 2, 5 or 10 to get an image of the load.
- During the settings the car should be in the middle (height) of the shaft.
- **Of course all settings remain unchanged during power off!**

6.2 Check of the mounted load sensor

Push the button „MINUS“ for 3 sec. during normal operation (display on). The internal measurement values of the load sensor will be displayed. 100kg load change should be minimum values change of 25 values. The more values the better and more stable the measurement of the unit.

6.3 Measurement of the empty car weight

The car must be empty before starting the measurement.

1. Push the button „menu“ till the green LED “empty car” is on. The display shows the time of measurement (20 sec).
2. To confirm the start of the measurement you have to push the button “OK”.
3. The countdown of the measurement time starts. The measurement will be ready if the display shows zero. After that the unit automatically goes back to normal operation and the LED “load” is on again.

6.4 Measurement of rated load

The rated load must be in the car before starting the measurement.

1. Push the button “menu” till the green LED “load” is on
2. Push the button „OK“ and the LED „load“ will flash.
   Now you can set with the buttons „plus“ or „minus“ the weight that is in the car.
3. Same procedure like paragraph 6.3.2 and 6.3.3.

Full load > 1000kg
The 3-digit display shows up to 900 kg full load of the lift it will show an over load of **990** kg.
If the full load is above 1000 kg the display of the unit will show the load in tons.
Instead of 1000kg (3-digit display) it will display **1.00** tons!
For this reason the load weighing unit can be used for lifts with a full load of 1000 kg or more.

Measurement with less weight:
It is possible to do the setting of full load with less weight (minimum 50% of full load). After the setting with less weight you have to change the thresholds to the correct needed values. The more weight (100% of full load) the more exact is the measurement of the unit.

6.5 Threshold setting "full load"

The value of the full load is automatically set to the value mentioned in paragraph 6.4.

6.6 Threshold setting "over load"

Remark: EN81 (European standard) paragraph 14.2.5.2: „The overload is considered to occur when the full load is exceeded by 10 % with a minimum of 75 kg.
The value of the overload is automatically set to the value according the EN81.

6.7 Threshold setting "minimum load"

The value of the minimum load is set at the value of 50kg (default value).

Advice to 6.4, 6.5, 6.6, 6.7:

- The output relays are preset normally open "NO" and can be changed to normally closed "NC".

7 Additional settings

7.1 Changing of the threshold values after above mentioned setting

If you want to change one of the thresholds proceed as follows:

1. Push the button „Menu" till the red LED „Full load", „Overload" or „Minimal Load" is on.
2. Push the button „OK" till the required LED is flash. Now the display shows the actual value.
3. By pressing the buttons "plus" or "minus" you can change that value.
4. By pressing the button „OK" you confirm the new set value and the unit automatically goes back to regular operation and the LED "load" is on again.

7.2 Changing relay output "full load" from normally open (NO) to normally closed (NC)

1. Push the button "Menu" till the red LED „Full load" is on.
2. Press simultaneous the 2 buttons "plus" and "minus" for 1 sec.
3. If the display shows 101 (flash) the relay output is set as a "NC" contact.
   If the display shows 100 (flash) the relay output is set as a "NO" contact. (default value 100)

7.3 Changing relay output "overload" from normally open (NO) to normally closed (NC)

1. Push the button "Menu" till the red LED "overload" is on.
2. Press simultaneous the 2 buttons "plus" and "minus" for 1 sec.
3. If the display shows 201 (flash) the relay output is set as a "NC" contact.
   If the display shows 200 (flash) the relay output is set as a "NO" contact. (default value 200)

7.4 Changing relay output "min load" from normally open (NO) to normally closed (NC)

1. Push the button "Menu" till the red LED „minimum "load" is on.
2. Press simultaneous the 2 buttons "plus" and "minus" for 1 sec.
3. If the display shows 301 (flash) the relay output is set as a "NC" contact.
   If the display shows 300 (flash) the relay output is set as a "NO" contact. (default value 301)

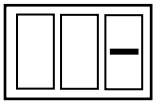
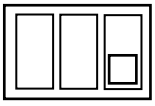
Of course all settings remain unchanged during power off!

8 Functional test

The load weighing unit is in regular operation mode if the LED "load" is on.
The proper operation of the load weighing unit should be checked in periodical times.
Proceed as follows:

1. The LED "load" must be on.
2. Put weight into the car till the full load will be exceeded. The LED "full load" should be on and the relay should switch.
3. Now put some more weight into the car till the overload will be exceeded. The LED "overload" should be on and the relay should switch.
4. Unload the car and check if the LED "overload" and "full load" are off.

9 Fault diagnostics

Error:	procedure:
Display shows 	Less measurement value! Possible causes: • Load sensor not mounted correct • Load sensor mounted on an unsuitable place Analysis: Push the button „MINUS“ for 3 sec. during normal operation (display on). The internal measurement values of the load sensor will be displayed. 100kg load change should be minimum values change of 25 values. Check the mounting guidelines!
Display shows 	The load sensor is not connected to the load weighing unit. One of the wires of the connecting cable is broken. Check the connection between load sensor and the load weighing unit.
LED “Load” is not on	Check power supply and connection cable
The relays do not switch by reaching the thresholds (look at the LED)	Check the connection cable
The relays switch but the control does not react	Check the connection to the lift control.
The thresholds do not comply with the weight.	Check the mounting area of the load sensor. Repeat the content 6 „OPERATION“

10 Maintenance and warranty:

The load weighing unit needs no specific or regular maintenance.
If the unit is mechanical damaged and does not function correctly anymore, the complete unit must be replaced.
The proper operation and the function of the thresholds of the load weighing unit should be checked in periodical times.
We guarantee the intended function and product reliability of our load weighing units.
During 2 years after delivery date we will replace the unit immediately, if it does not work in a correct way although professional and proper installation.
Such an acceptance of a guarantee is only possible after a notice in writing.

11 Other load weighing units

For further information please visit our homepage:

http://www.variotech.com/

12 Sales department and customer service

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