Operating Manual

Multirope

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Content

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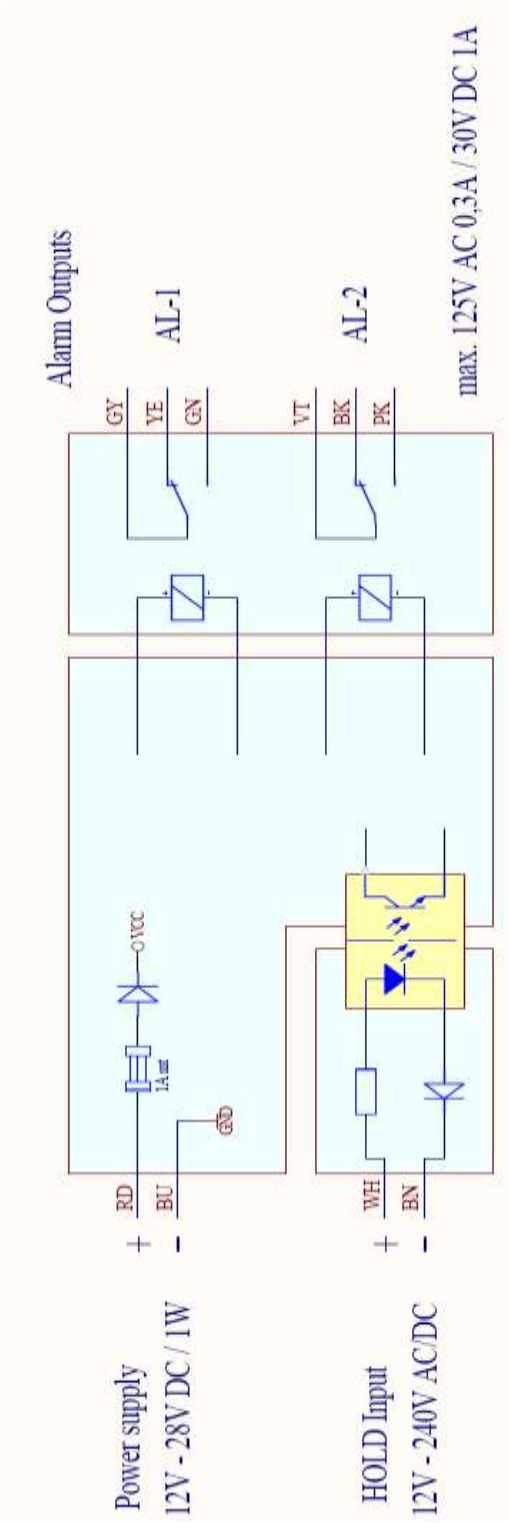
1. Connection Diagram



Wire configuration		
Farbe	**Abk.**	**Belegung**
Red	RD	Supply voltage 24 V DC
Blue	BU	Ground
White	WH	+ Hold input
Brown	BN	- Hold input
Green	GN	NO contact AL-1
Yellow	YE	NC contact AL-1
Grey	GY	COM contact AL-1
Pink	PK	NO contact AL-2
Black	BK	NC contact AL-2
Violet	VT	COM contact AL-2

2. Alarm Relays

AL-1 (change-over contact)

Changes state as soon as the load limit adjusted by AL-1 is exceeded.

AL-2 (change-over contact)

Changes state as soon as the load limit adjusted by AL-2 is exceeded.

3. HOLD-Function

The HOLD-input responds to alternating and direct voltages between 12V and 230V. Due to friction at the guide rails etc., loads measured during travelling might heavily fluctuate. This will prevent the alarm from putting out any alarm as long as the HOLD-input is supplied with voltage (e.g. travelling signal).

4. How to Access a Parameter

The unit is provided with a menu offering access to the adjustable parameters.

 This key is pressed to browse through the menu items. After selecting a menu item, it is used to navigate through the sub-menu. For parameters, it helps you set the parameter-value desired.

 This key is pressed to select a menu item displayed, or to apply the value set for a parameter.

 This key is pressed to quit the current menu item or parameter without applying the set value. By repeatedly pressing this button, you will return to displaying the current total load in the car.

Attention:
The unit automatically returns to its home-position displaying the current total load in the car, and will do that after one minute without any push of a button, regardless of which menu-item had been selected beforehand.
After ten minutes without any push of a button it changes into the energy-saving mode, i.e. the display goes off for being reactivated by the next push of a button.

5. How to Adjust a Parameter

1.) Press button  to navigate through the parameters until the one to be adjusted is displayed.

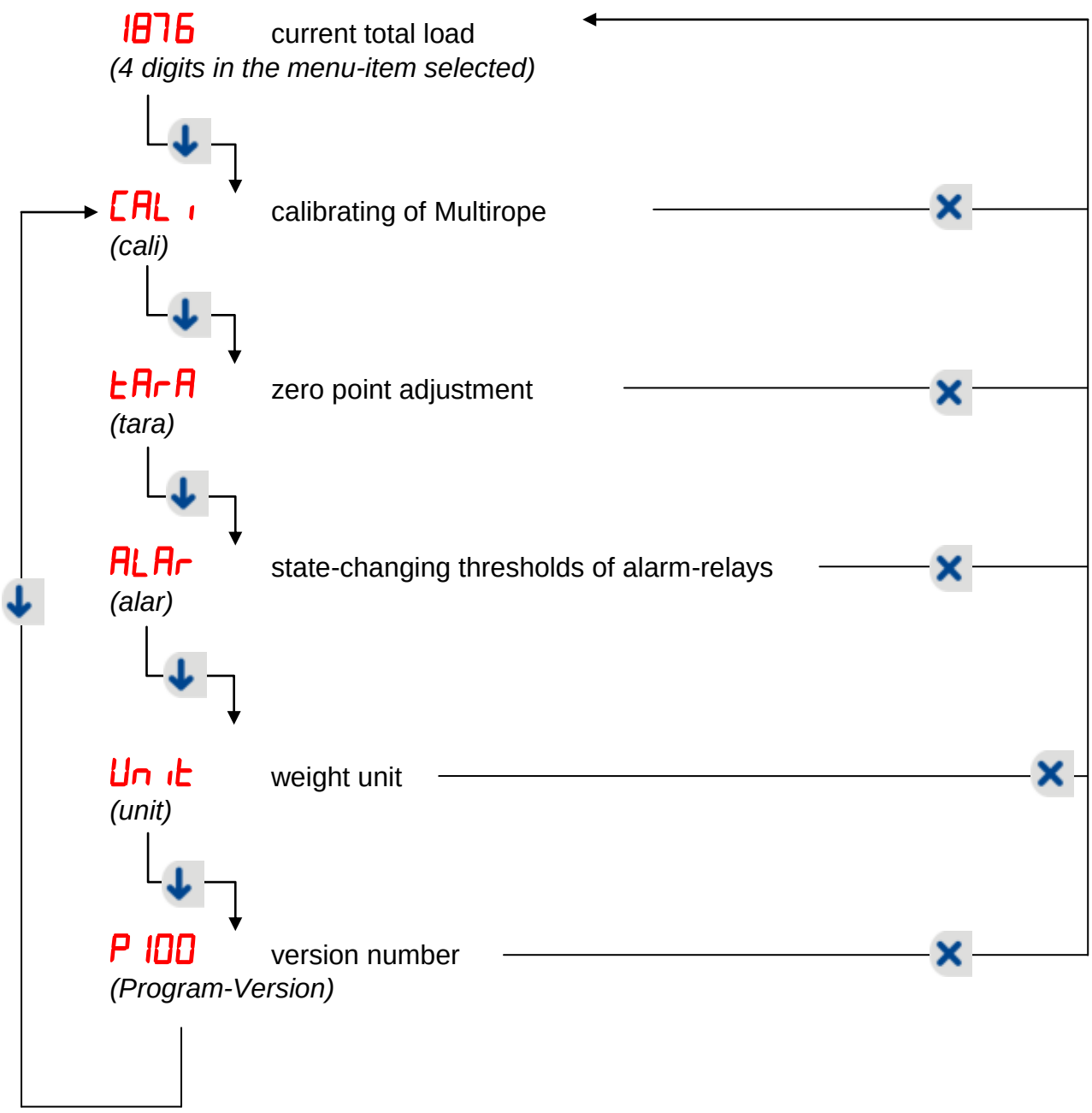
2.) Press button  to select this parameter.

3.) Press button  to navigate to the value desired for the currently flashing digit. Press button  to change to the next digit.

4.) After setting the last digit, press button  again. After that the whole figure will be flashing.

5.) Press button  once more to apply the adjusted parameter.

6. Scheme of Menu



7. How to Calibrate the Load Measuring

Leaving the pre-adjusted menu-item Unit unchanged means that the loads are to be entered in terms of percent of the nominal load, such as for example 100% for full load and 105% for overload.

Take the following steps to calibrate the Multirope

1. Mount the rope-sensor to the ropes
2. Connect Multirope to a power supply ranging between 12V and 28V DC
   Calibrate the Multirope both under full load and zero-load conditions
   a. **How to Calibrate Zero Load**
      Purpose of this function is to compensate the weight of the empty cabin. Take the following steps:
      i. By ↓ navigate to menu-item CAL i and select it by pressing ↵. Then navigate by ↓ to menu-item Zero and select it by pressing ↵. The standard value (refer to Unit) is 000'i (0% load, i.e. empty cabin). As soon as you will have adjusted the last digit, the whole figure will be flashing.

      ii. Apply it by pressing ↵. After that a countdown will be running from 9999 to 0000. At 0000 the current weight of the car will be measured. It goes without saying that at that moment there must not be anything in the cabin or on the car roof that does not belong there under normal operation conditions (tools!), and that there must not stay any person in the cabin or on the car roof in order not to warp the zero load parameter.

   b. **How to Adjust Full load**
      Take the following steps:
      i. By ↓ navigate to menu-item CAL i and select it by pressing ↵. Then navigate by ↓ to menu-item LoAd and select it by pressing ↵. After that adjust on the display an arbitrary load to be loaded into the cabin. Unless you changed the standard of menu-item Unit enter this load in terms of a percentage of the nominal load, i.e. 100% (100'i), if you are loading the nominal load, or 75% (075'i) if you are going to load ¾ of the nominal load only. As soon as you will have adjusted the last digit, the whole figure will be flashing.

ii. Apply it by pressing  . After that a countdown will be running from 9999 to 0000. At 0000 the current weight of the car including load will be measured. It goes without saying that at that moment there must not be anything additional in the cabin or on the car that does not belong there under normal operation conditions (tools!), and that there must not stay any person in the cabin or on the car roof in order not to warp the full load parameter.

iii. As from now on calibration of the rope-sensor is completed and in effect.

8. Alarm Limits

Alarm limit: a designation that corresponds to the load limit in the cabin, which – if exceeded – will change the state of the alarm relay. After changing the state of the alarm-relay, the corresponding status-LED will be luminating.

AL-1 (freely programmable load)

Changes its state, if the load limit adjusted by parameter AL-1 is exceeded.

AL-2 (freely programmable load)

Changes its state, if the load limit adjusted by parameter AL-2 is exceeded.

How to Adjust the Alarm Limits:

1. By  navigate to menu-item ALAr and then press  .
2. Now – in the same manner – navigate to the alarm limit to be adjusted (AL-1, AL-2) and select it by pressing  .
3. By  navigate to the desired value of the currently flashing digit and select it by pressing  . This will at the same time make the next digit flash.
4. After having adjusted the last digit and accordingly pressed  , the whole figure will be flashing.
5. **Press  once more to apply the parameter.**
6. You can quit this menu-item at any time by pressing  .

Attention:

Unless you changed the standard setting of menu-item Un it the alarm limits are to be adjusted in terms of percentage, i.e. 100% for full load and 105% for overload.

9. How to Adjust the Display

Menu-item Un it offers two options. Weights and alarm limits will be displayed according to the option you choose.

- Prcn *(Percentage)* — Weights are all displayed in terms of percentage. (**preset standard**)
  Full load equals 100%
  Empty cabin equals 0%
- LoAd *(Load)* — Weights are displayed in tons.

10. Electric Characteristics

Multirope

Supply Voltage	12 V – 28 V DC
Power Consumption	< 1 W at 12 V DC
Fuse	1 A mT
HOLD-Input	12V-230 V AC/DC
Relay outputs	2
max. switching voltage	250 V AC / 220 V DC
max. starting current	2 A
max. continuous load current	30 V DC 1 A 125 V AC 0,3 A
max. switching capacity (resistive load)	62 VA
max. switching capacity (inductive load)	62 VA
min. switching load DC	10 mV DC 0,01 mA

11. Multirope Installation

1.) Selection of the appropriate installation area

The area where the Multirope is fitted in the rope must meet the following requirements:

- The sensor may not mechanically touch other components during the entire ride of the lift.
- In the area where the sensor is installed the ropes must run straight and show no signs of defects.
- The installation area must show no signs of previous mechanical effects such as other rope sensors, multiple installations etc.
- A distance of at least 10 cm of free rope must be maintained between the rope sockets and load sensor.

2.) Fitting the sensor in the rope

- Remove the clamping brace if this has not already been done. Distribute the 4 retaining bolts as evenly as possible on the heel of the clamping brace so that they do not affect the vertical rope course.

3.) Closing the rope clamp

Introduce the clamping brace over the 4 aligned bolts of the heel. Alternately tighten up the 4 nuts until the rope sits close against the heel of the clamping brace.

12. Operation Instructions in Brief

1.) Install the unit at an appropriate place.

2.) Calibrate with empty cabin

By ↓ navigate to menu-item CAL ı select sub-item 2Ero and confirm by ↵. The preset standard (see Un it) is 000'ı (0% cabin load, i.e. empty cabin). After setting the last digit, the whole figure will be flashing until you confirm it by pressing ↵. After that a countdown will be running from 9999 to 0000. At 0000 the current weight of the cabin will be measured. At that moment there mustn't be anybody in the cabin or on the car roof , in order not to warp the measurement. Furthermore make sure that you didn't leave any tools in the cabin or on the car roof, nor any other things that don't belong there during normal operation.

3.) Calibrate with loaded cabin (nominal load)

By ↓ navigate to menu-item CAL ı select sub-item LoAd and confirm by ↵. Now you can adjust on the display an arbitrary load that you will load into the cabin. Unless you changed the preset menu-item Un it, you will have to enter the load in terms of percentage, i.e. 100% (100'ı), if you load the nominal load, or 75% (075'ı), if you load ¾ of the nominal load for example. After setting the last digit, the whole figure will be flashing until you confirm it by pressing ↵. After that a countdown will be running from 9999 to 0000. At 0000 the current weight of the cabin (including load!!) will be measured. At that moment there mustn't be anybody in the cabin or on the car roof , in order not to warp the measurement. Furthermore make sure that you didn't leave any tools in the cabin or on the car roof, nor any other things that don't belong there during normal operation, except the load for calibration.

4.) Adjust the alarm limits (see item 10)

By ↓ navigate to the alarm limit and confirm by ↵. Scroll by ↓ to the value desired, then press ↵ to adjust the state-changing limit. Press ↵ 2 times to confirm the adjustment.

5.) Connect the control lines to the lift controller and make sure that you accordingly choose the make- resp. break-contact.

Comparison of WeightWatcher, WeightWatcher light and WeightWatcher light MultiRope

	Weight Watcher		Weight Watcher light		Weight Watcher light MultiRope
Evaluation Unit	AE12		AE16 light	AE8 light	MultiRope, sensor is connected to the evaluation unit
Number Of Sensors	12		16	8	1
Voltage	12 - 28 VDC		12 - 28 VDC	12 - 28 VDC	12 - 28 VDC
Power Consumption	4 W		0,8 W	0,8 W	1 W at 12 V DC
Output Relays	4 NO/NC (zero load, full load, overload, slack rope)		3 CO, freely programmable	2 CO, freely programmable	2 CO, freely programmable
Analogue Output	optional		optional	•	•
Hold Input	12 - 230 VAC/DC		12 - 230 VAC/DC	•	12 - 230 VAC/DC
CanOpen	optional		optional	•	•
Display	LED, 4 digits		LED, 5 digits	LED, 5 digits	LED, 4 digits
Operation	3 keys		3 keys	3 keys	3 keys
Determination Of Car Weight	•		•	•	•
Rope Tension Assistant	• (Via Laptop)		•	•	•
Configuration by laptop	• (USB-Kabel)		• (special cable)	•	•
Dimensions (L x W x H)	105 x 90 x 62 mm		115 x 80 x 40 mm	115 x 80 x 40 mm	sensor is connected to the evaluation unit
Art.-No.	456000, 455002 (Analog), 455005 (CanOpen)		456000	456100	
Rope Load Sensors	LS 1	LS2	LS 2000	LS light	MultiRope 200 / MultiRope 300
Art.-No.	455500	455400	455850	456500	456600 / 456700
Rope Diameter	6 - 16 mm	4 - 10 mm	6 - 16 mm	4 - 13 mm	4 - 26 mm / 4 - 28 mm
Measuring Range	0 - 500 kg	0 - 300 kg	100 - 2000 kg	0 - 500 kg	300 - 2500 kg / 700 - 6000 kg optional 10.000 kg
Measuring Principle	Strain Gauge	Strain Gauge	Strain Gauge	Strain Gauge	Strain Gauge
Calibrated Sensors	•	•	pre-cal./rope Ø weight	•	• / •
Calibration After Installation	•	•	•	•	• / •
Temperature Range	0° - 70°C	0° - 70°C	0° - 70°C	0° - 70°C	0° - 70°C / 0° - 70°C
Length Of Cable	2,5 m	2,5 m	2,5 m	2,5 m	5 m / 5 m
Dimensions (L x W x H)	250 x 80 x 18 mm	178 x 72 x 17 mm	300 x 80 x 80 mm	110 x 70 x 22 mm	220 x 220 x 132 mm / 229 x 320 x 142 mm

• = Standard
• = Not available