



## CONTROL UNIT OMEGA 804

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### User manual



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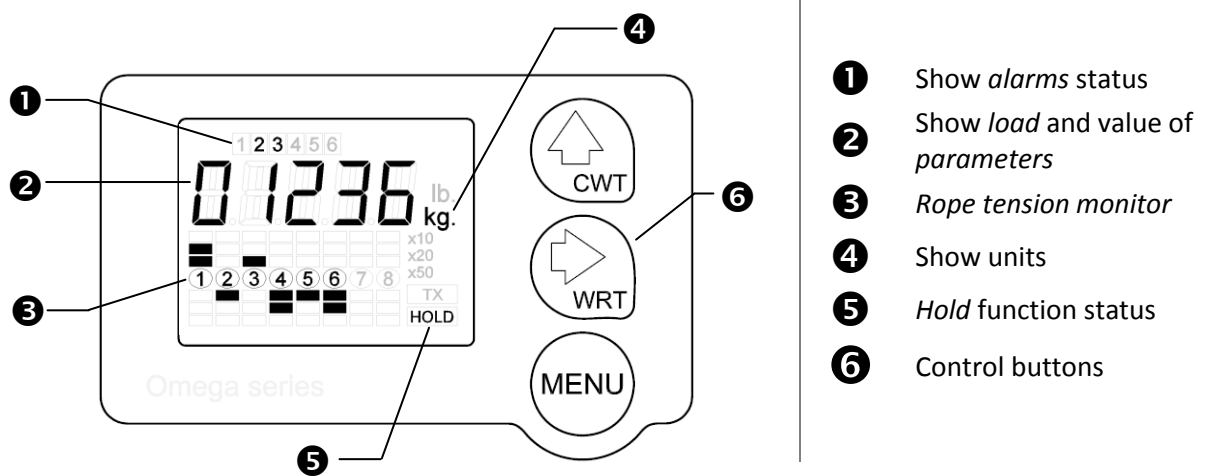
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## 1. DESCRIPTION AND MAIN FEATURES

Dinacell OMEGA 804 is a control unit to measure, monitor and limit the load of a elevator besides to monitor the tension of each elevator rope individually.

This system consists of inputs for up to eight *sensors* and the following inputs and outputs to interface with the elevator controller: output for *display in the cabin*, four *relay contacts* to inform of the load levels chosen and one input to *hold function*, that inhibit load measure during the elevator travel.

## 2. DISPLAY AND CONTROL BUTTONS



Functions of control buttons:



- Enter/exit of the menu and navigate through parameters.
- Accept and save modified values.

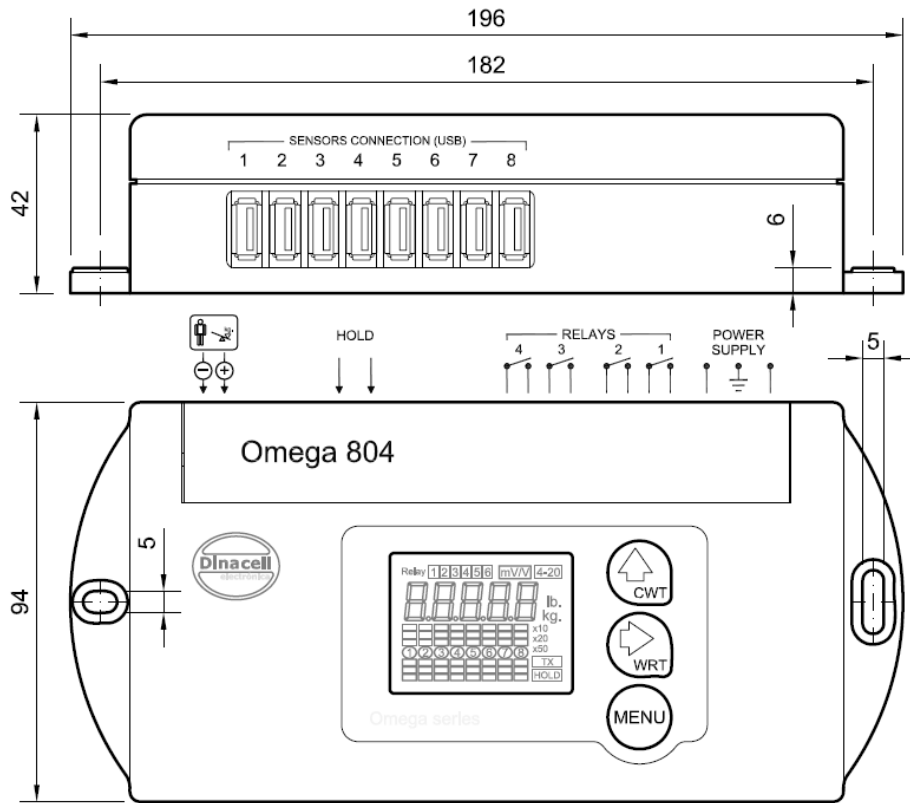


- When load is shown: Enter in the *rope tension monitor* function
- During menu navigation: Enter to modify a parameter.
- While modifying a parameter: Chose digit to change.

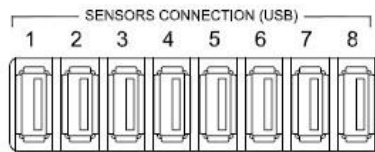


- During menu navigation: Show the stored value of the selected parameter.
- While modifying a parameter: Change the blinking digit incrementally from 0 to 9.

### 3. INSTALLATION AND CONNECTIONS

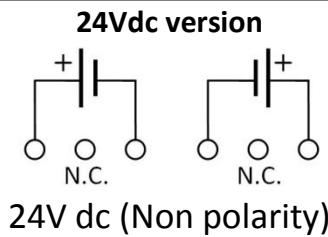


**Sensors input**



USB sockets for load cells.  
(SWK, SWR, TCA, LCA)

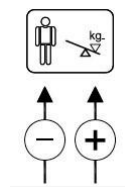
**Power supply input**  
(Two versions)



24V dc (Non polarity)

Earthed **80-260V ac** power supply.

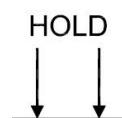
**Cabin display output**



It provides two types of output depending on the CDISP parameter:

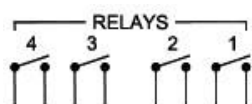
1. CDISP = "INCRE": Progressive display MB-D (two wire connection without polarity).
2. CDISP = "LED": Under overload it will be an intermittent voltage of 7,5V (max. 75mA) with the polarity shown in the figure.

**HOLD input**



This function will be activated when an input voltage of 24 to 230V (DC or AC) is applied. (See the **ADDITIONAL FUNCTIONS** chapter).


**Relay connections for alarms**

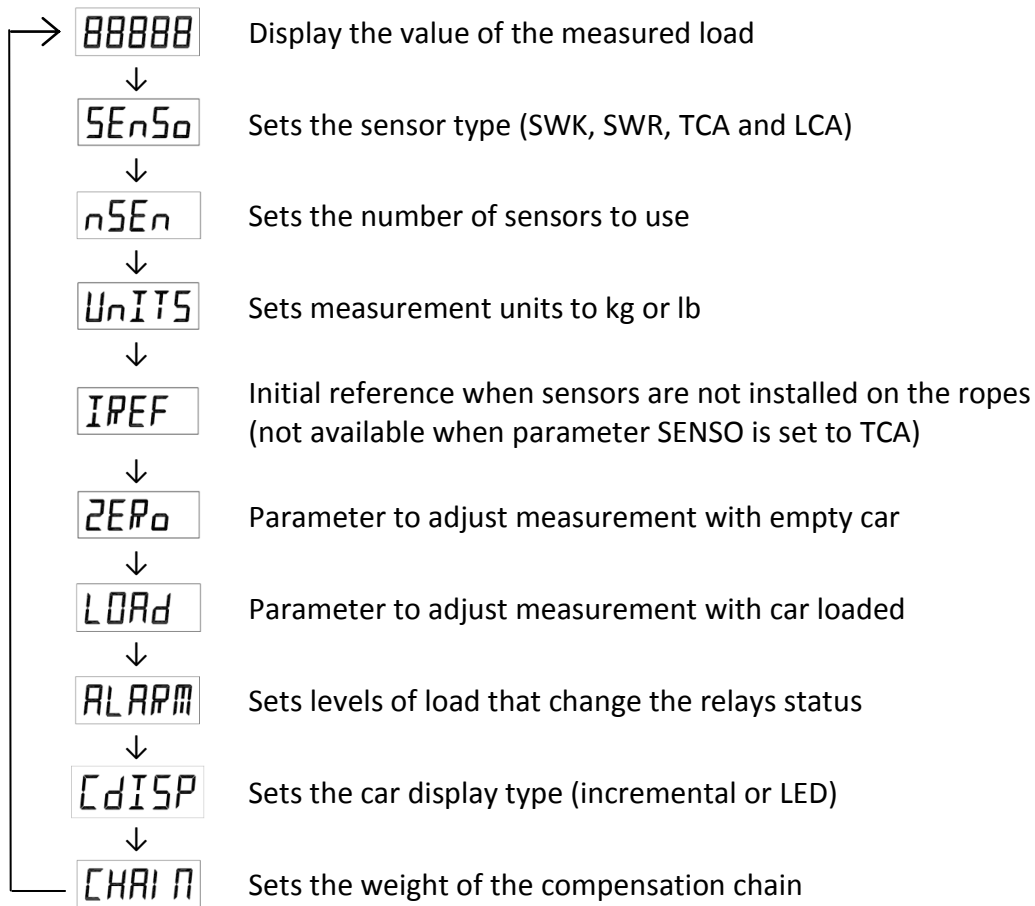


Terminals of the alarm relays.  
(See the alarms section in chapter 7.2)

## 4. MENU STRUCTURE







The menu has the cyclic structure shown in the following figure.

Press  button for 3 seconds to enter, then press it repeatedly to move from a parameter to another. Press it for 3 seconds to exit.




## 5. HOW TO CHECK OR MODIFY PARAMETERS

Once inside menu and display showing the parameter to be viewed or changed:

- Press  to check the current value.
- Press  to enter to modify the value:
  - Press  to chose the digit to change (blinking) and  to change it.  
(if there's no digit blinking, change the value with  button directly).
  - Press  twice to save the value.



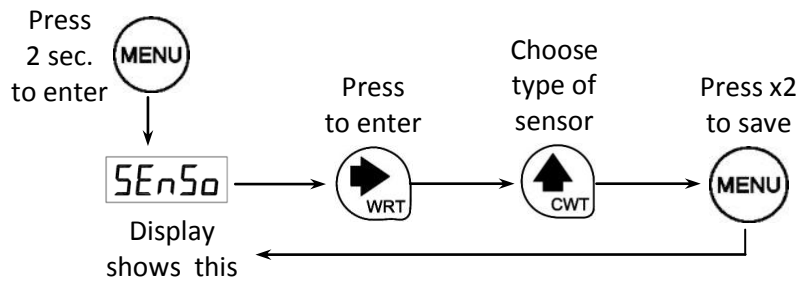
If  button is not pressed the second time before display blink ends, the changes will not be stored.

After any of these operations, the display shows the current parameter.

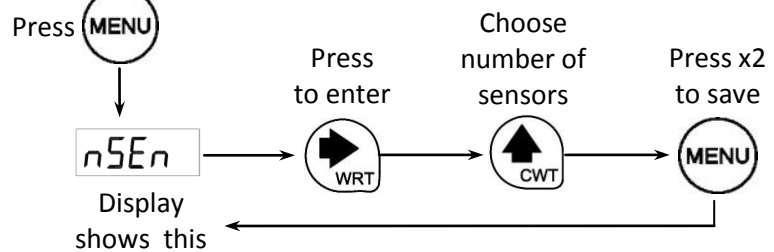
## 6. INITIAL CONFIGURATION

1. Install the control unit with the information of the *INSTALL AND CONNECTIONS* chapter, and then power up the unit with the correct voltage (see the *SPECIFICATIONS* chapter).

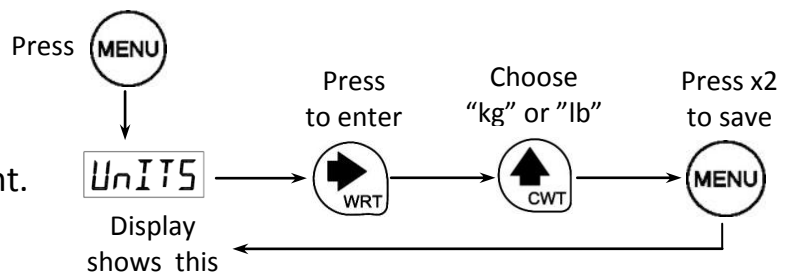
2. Set parameter `SEnSa` according with the sensors type that it is going to use .



3. Set parameter `nSEn` according with the number of sensors that it is going to be connected.



4. Set units of measurement.



Follow next configuration steps depending on the application.

## 7. TYPES OF CONFIGURATION DEPENDING ON THE APPLICATION

This system has two modes of working:

- a) can be used to adjust ropes tension (WRT)
- b) can be used as a load weighing device (LWD).

The `IREF` operation sets the zero when sensors are not installed on the ropes. After this, the ropes tension can be measured and adjusted individually.

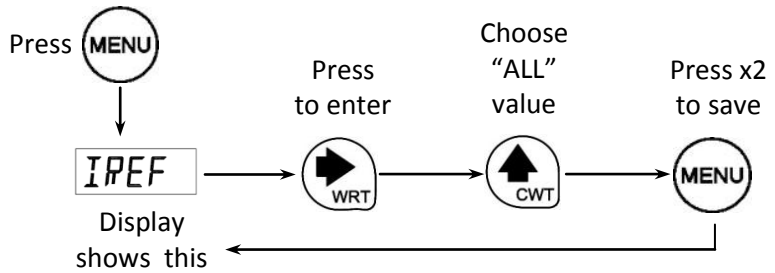



IREF operation is not available for TCA sensor

### 7.1. SYSTEM USED AS A ROPE TENSION MONITOR (WRT)

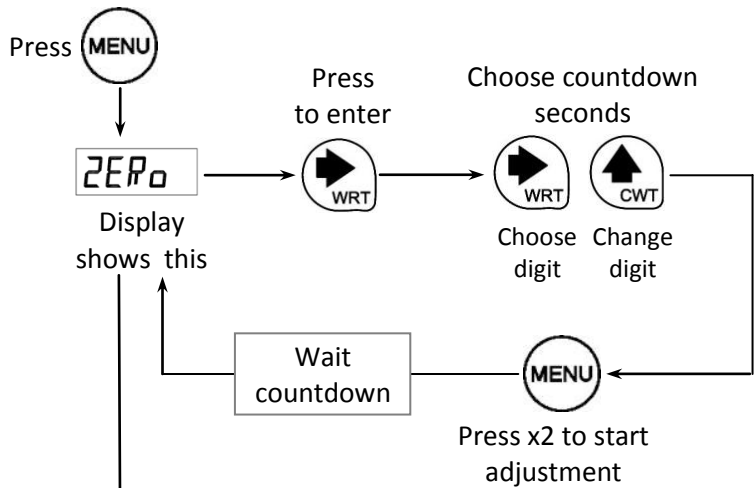
 Make sure that the sensors are not installed on the ropes.

1. Set **IPEF** with the value "ALL".

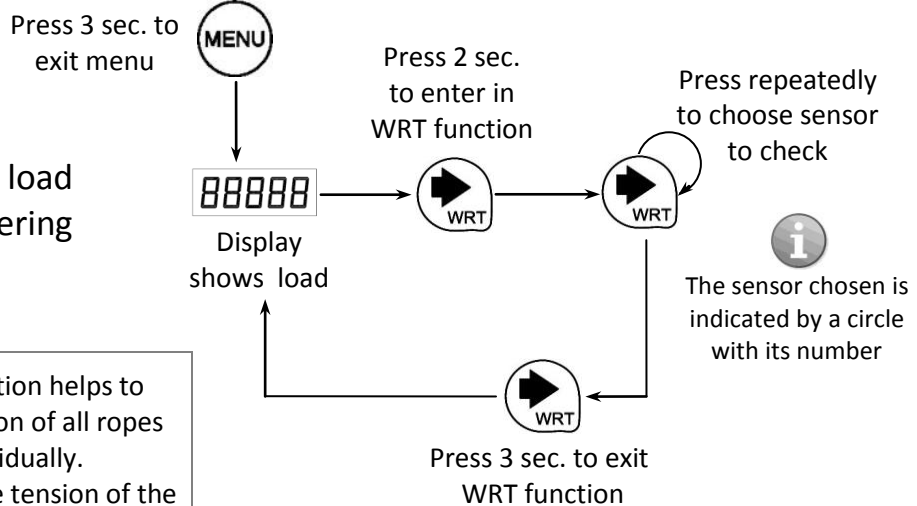



 Now install sensors on the ropes.  
Make sure the cabin is empty and there's no weight in the car roof.


2. Adjust ZERO with the cabin empty.



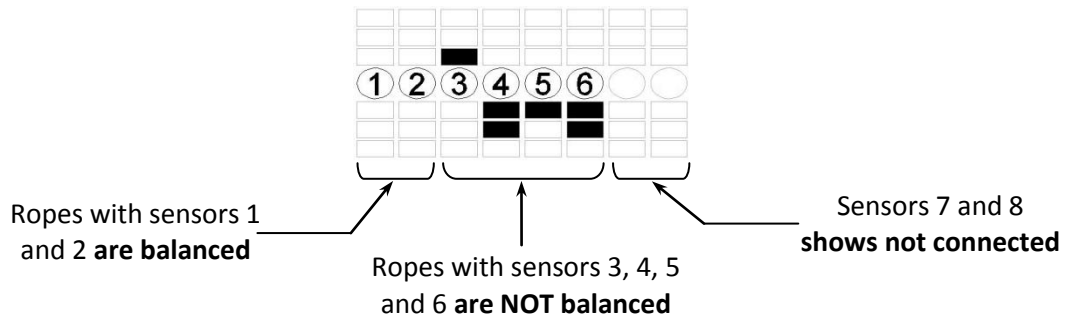
3. Check sensors load individually entering in WRT function.



 WRT function helps to check tension of all ropes individually. To adjust the tension of the ropes, follow the next step.

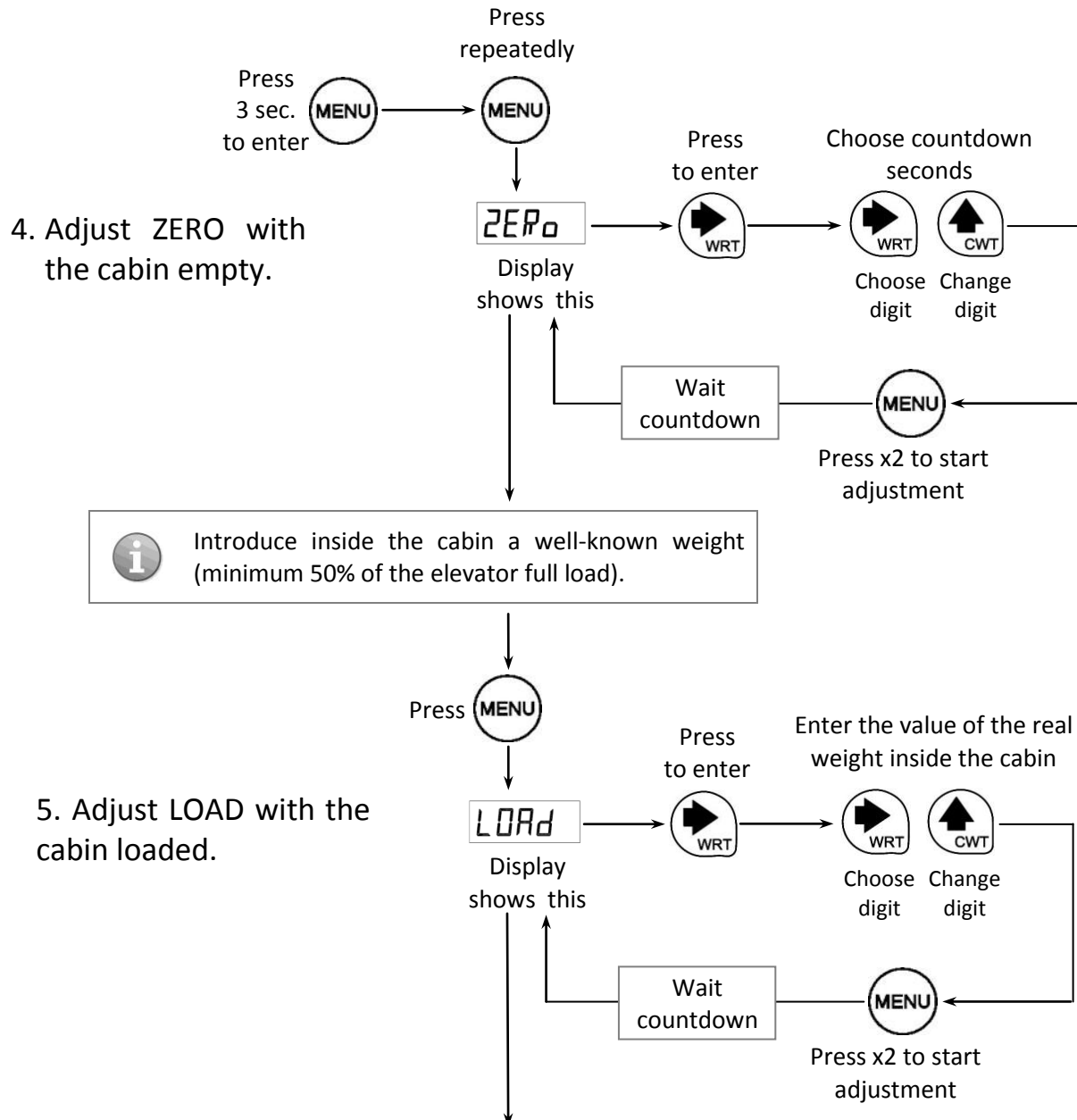
 The sensor chosen is indicated by a circle with its number

- Adjust tension of ropes with the help of *rope tension monitor (WRT)* in display, as it is explained with the next figure.



## 7.2. SYSTEM USED AS A LOAD WEIGHING DEVICE (LWD)

- Drive the elevator car to the middle of the shaft.
- Bounce in cabin to insure there's no friction on guides.
- Install sensors on the ropes.**

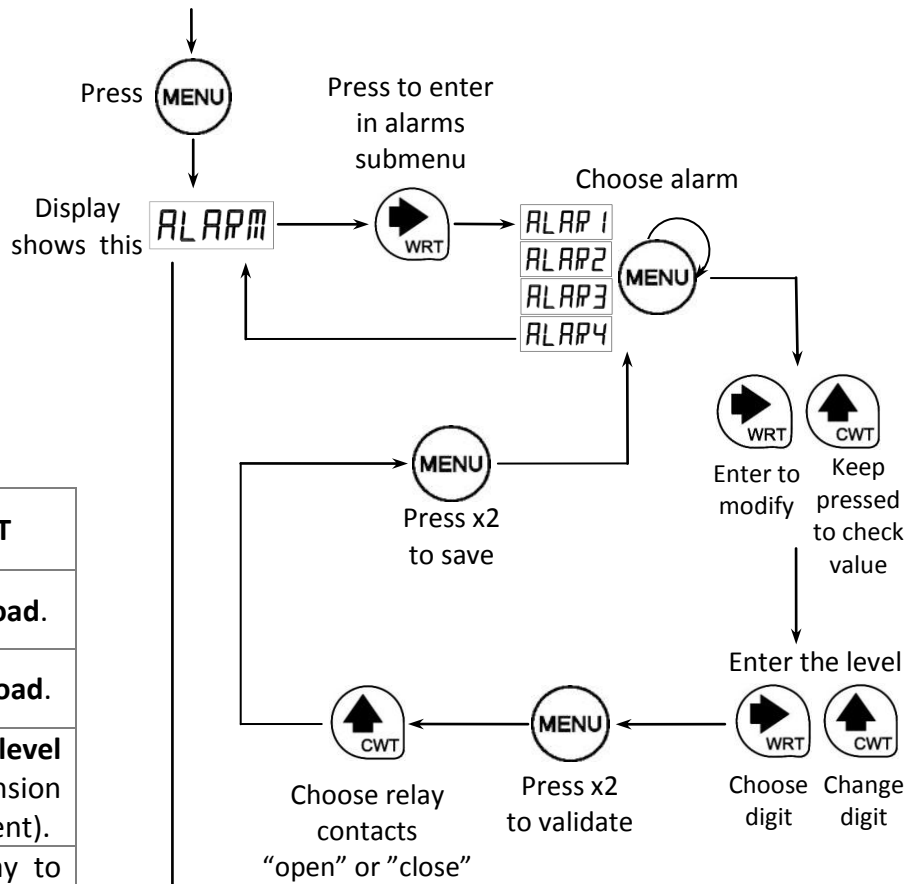




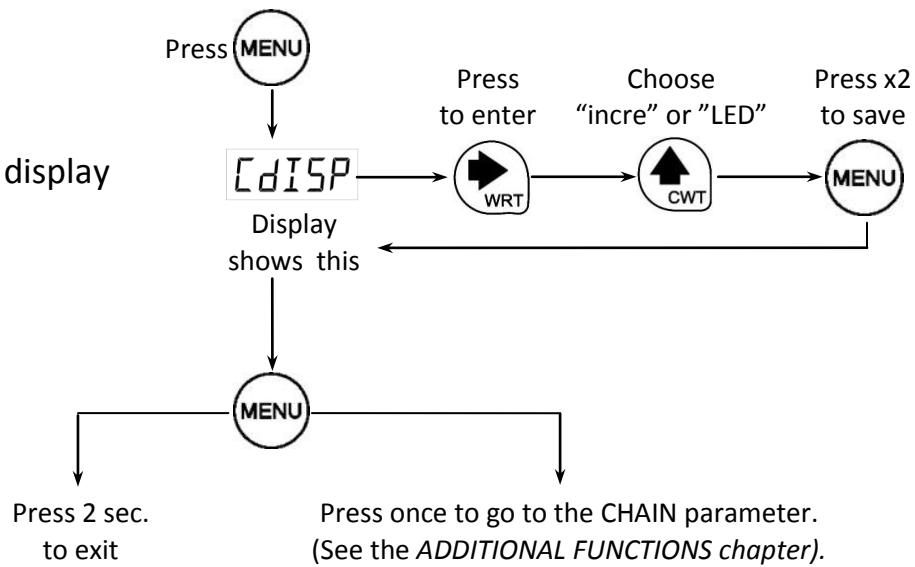
### 6. Set alarms.

“Alarms” are the programmed load levels that change the state of relays. It is not necessary to introduce weight in the cabin.

RELAYS ASSIGNMENT	
Alarm1	Relay for <b>Full Load</b> .
Alarm2	Relay for <b>Overload</b> .
Alarm3	Relay for <b>Unlevel Wire Rope Tension</b> (Fixed assignment).
Alarm4	Additional Relay to activate MB-D, LED, buzzer or other warning devices.



### 7. Set cabin display output.



## 8. ADDITIONAL FUNCTIONS

### 8.1. HOLD FUNCTION

When a voltage in the range 24-230V (DC or AC) is applied in this input, the unit stops to measure and the last value of weight acquired will be shown in display.

The voltage must be applied when the doors close and the it must be removed when the doors open. This ensures that the movement of the cabin will not affect the weighing process and therefore, no relay will be activated during elevator travel.

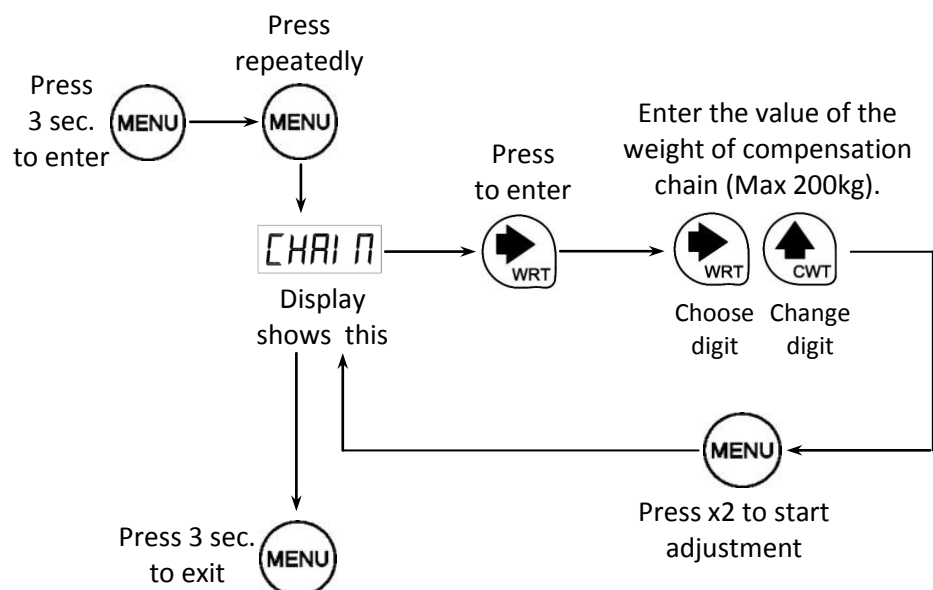
Also, when the doors are closed, since no more people will be entering in the cabin, there is no reason to continue the weighing process. When the doors open, voltage must be removed from the hold input so that the unit can begin measuring the load in the cabin.

### 8.2. CHAIN COMPENSATION

This function allows to compensate the difference of weight between floors produced by the compensation chain.

The unit needs the HOLD signal active when the doors close to compensate the weight during the elevator movement.

How to set the chain compensation weight (Max. 200 kg):



The default value is zero (00000), this means that no chain compensation is activated.

## 9. ERROR CODES AND TROUBLESHOOTING

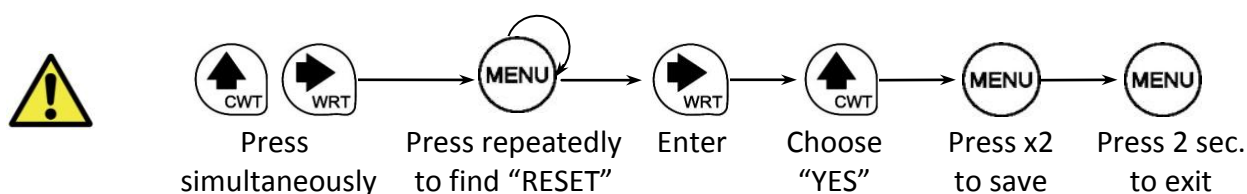
When the unit detects some anomaly it will show an error codes of the following:



**Important:** When an error appears, all alarms are activated and the elevator remains blocked.

	Error description	Action
	Load cell is not properly connected, it or its cable is damaged.	Check the load cells connection.
	Negative overflow. The load cell is giving a negative signal too high.	Check the load cell connection because it should be no negative charge.
	Positive overflow. Load cell is holding a higher load than its nominal value.	load cell by another with higher nominal load.
	Polarity error. This happens when the unit adjusts the weight with the wrong load cell polarity, or the weight is not in the cabin during the adjustment.	Check the load cells connection. Adjust the zero and weight again.
	Loss of data in memory. <b>Notice:</b> When this error appears, every relay will remain in OFF state.	The unit must be configured again with the properly values.
	Load cell with very low sensibility. Usually the unit is wrong adjusted.	Adjust the zero and weight again.

### RESTORING THE FACTORY SETTINGS (Only in case of problems)

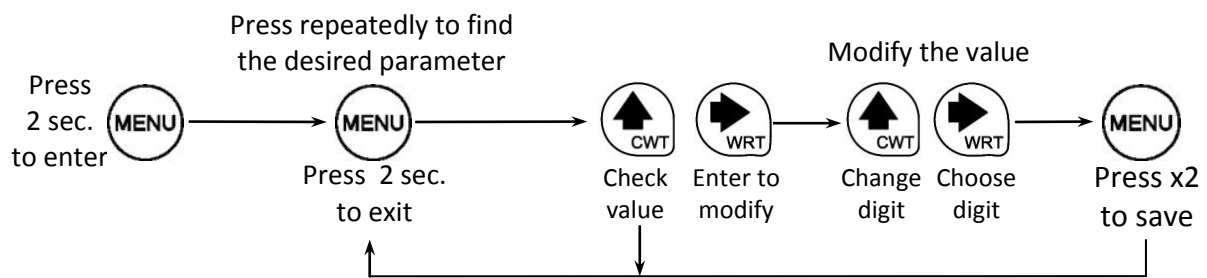


## 10. SPECIFICATIONS

	24Vdc version	80-260Vac version
Power supply characteristics	Short-circuitable. It is not necessary to replace any fuse.	
Nominal voltage	24V dc	80-260V ac
Maximum current	250mA	75mA
Nominal frequency	-	50-60 Hz
Relays Contacts	Normally Open 250V – 3A	
Box	IP-50 V0 fireproof plastic.	

## 11. QUICK CONFIGURATION GUIDE

### ▪ Parameters checking or modification





### ▪ Initial configuration of the unit

1. Make the necessary connections.
2. Set parameter `SEnSa` according with the sensors type.
3. Set parameter `nSEn` according with the number of sensors.
4. Set `UnITS` of measurement (“kg” or ”lb”).

Now follow steps a) or b) depending on the application:

#### a) Configuration when system is working as a rope tension monitor (WRT)

5. Make sure that the sensors are not installed on the ropes.
6. Set `IPEF` with the value “ALL”.
7. NOW, install sensors on the ropes.
8. Adjust ZERO with the cabin empty.
9. Check sensors load individually pressing  button during 3 seconds and then exit pressing  button during 3 seconds.
10. Adjust tension of ropes with the help of *rope tension monitor (WRT)* in display.

#### b) Configuration when system is working as load weighing device (LWD)

5. Drive the elevator car to the middle of the shaft.
6. Bounce in cabin to insure there’s no friction on guides.
7. Now, install sensors on the ropes.
8. Adjust ZERO with the cabin empty.
9. Adjust LOAD with a well-known weight inside the cabin.
10. Set desired alarms levels.
11. Set cabin display output (“incre” for progressive display or “LED”).
12. Set the chain compensation weight (max. 200 kg).