

DELTA

User Manual



Dinacell Electronica S.L.

Changes may occur without previous notice. The contain must be considered as general information. It must not be considered as quality warrantee. Some technical or editorial errors may occur.

Product notice

This manual describes the characteristics of the product in the current version. The resources included in this manual serve the set of DELTA models.

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For more information

www.elevatormotors.com

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Introduction

1.1 General Overview

The DELTA device is a Dinacell Electronics new generation (NG) measurement tool. Developed for the control and diagnosis of the ropes or belts individual tension. Used with the appropriate sensors you can measure and check up to 16 individual ropes or belts.

The Delta device is autonomous, powered by rechargeable battery, allowing efficient and ease of use. The communications are based on an integrated WiFi. It can be connected to a computer, tablets or mobile phone by using the app "Tools ng 2" allowing the installation control and generating a report of the same.

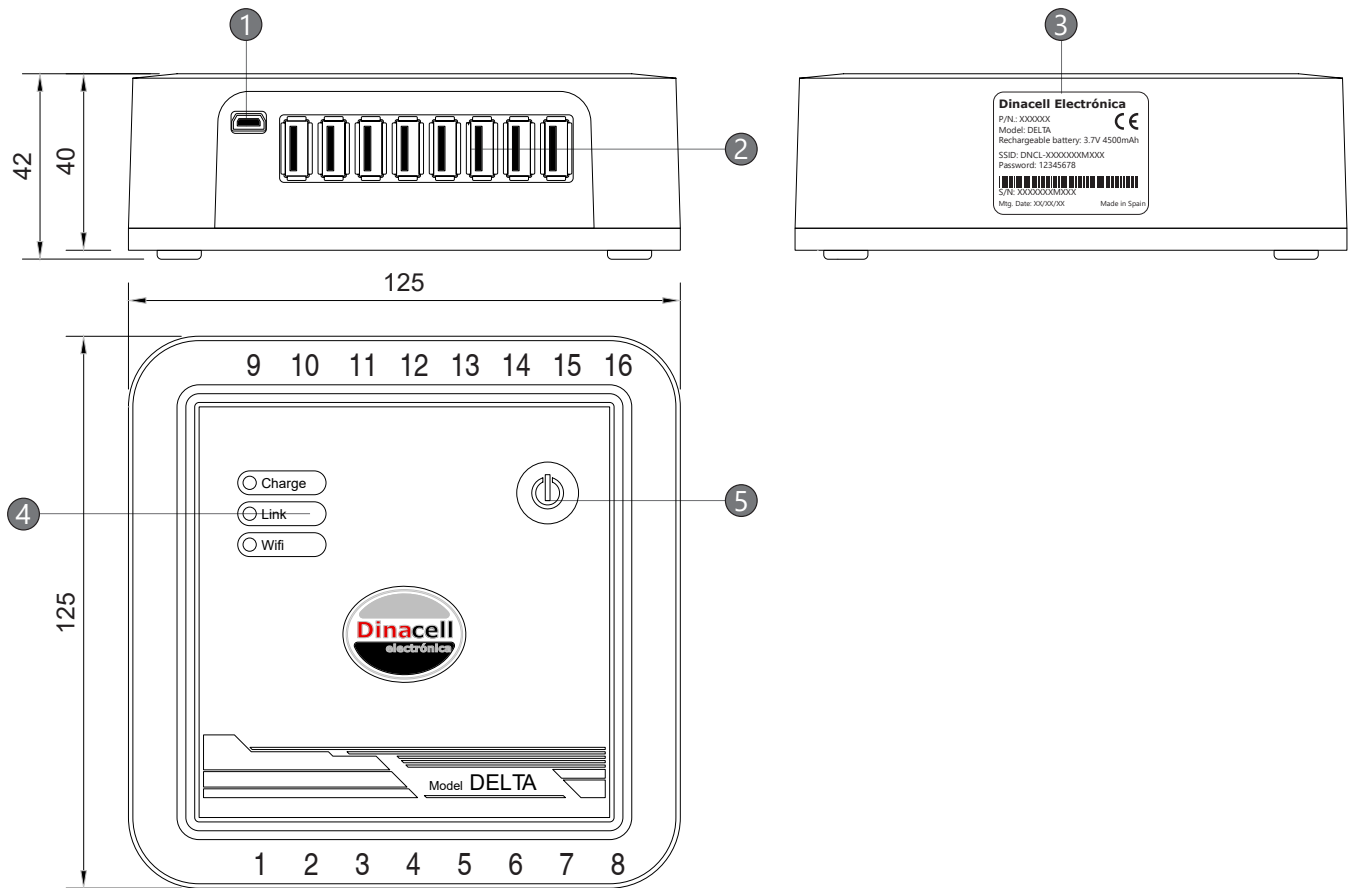
1.2 Main Characteristics

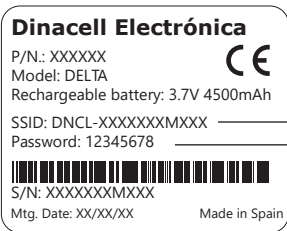

- Independent tension checking of up to 16 ropes or belts.
- Tension adjustment and balancing.
- 3 LED indicators for battery voltage level and connection.
- Battery: LiPo, 5000 mAh with built-in charger.
- NG technology: remote WiFi configuration and monitoring.
- Firmware update via USB port.

The equipment

2

2.1 Dimensions, keypads, leds and label



Component	Description and purpose
(1) Mini USB	Port to connect a cable adaptor from mini USB to USB. Used for charging the battery or connecting to a PC.
(2) Cells inputs	DELTA-8S: 8 channels or DELTA-16S: 16 channels
(3) Label	 <p>WiFi Network address</p> <p>Net password</p>
(4) LED	<input type="radio"/> Charge Charge. The battery is being charged. <input type="radio"/> Link The equipment is ON. <input type="radio"/> Wifi Connection. WiFi link is established with the app.
(5) ON button	 <p>If the device is off press to switch ON. If the device is ON keep press to switch OFF.</p>

Installation Set-Up

3.1 Connect the sensor to the DELTA

Connect the sensors to the Delta device for measuring and checking the rope or belt tension individually. Connect the sensors in order starting from the connector 1. For practical purposes identify the rope/belts with each connector number.

- Using Ropes, the appropriate sensors are RTMs, according to the rope size you should use RTM1 (Ø5-13mm) or RTM2 (Ø13-20mm).
- Using belts, the most appropriate sensors are the BTMs.

 For more information about the sensors used in the installation, refer to the installation guide.

These sensors are easily connected using the USB port to the DELTA. The number of channels may change according to the specific model, from 8 sensors for the DELTA-8S and up to 16 for the DELTA-16S.

3.2 App Tool NG 2



To use the DELTA device, the free app Tools ng 2 is needed. This app is Android, iOS and Windows compatible for PC, mobiles or tablets.



You can download from App Store or Play Store, depending on your system. Download the app and wait for the installation.

For PC it can be downloaded from www.dinacell.com. The application does not need installation just execute the application pressing the icon  **Tools NG 2** .

3.3 Linking to the DELTA

Once the app is downloaded and installed, the tablet, mobile or PC must be linked to the DELTA. The link can be established via WiFi or USB.


- WiFi: When the DELTA is ON, it will radiate a WiFi signal. In the tablet, mobile or PC, locate the WiFi net with the name "DNCL-serial number" and link to that DELTA WiFi net. The password by default is 12345678, this password can be modified by the user. The name and factory password are printed on the label (see chapter 2-3).
- USB: this option is only valid to connect the DELTA to a PC via a USB port. The DELTA has a mini-USB port. Using a cable adaptor mini-USB to the USB computer port (see Chapter 2-1), a link will be established. Also, the DELTA battery will recharge.

Once the link is established through the app, you can manage the DELTA.

DELTA Installation and configuration

Once the device is ready, (chapter 3), you must configure the installation using the app Tool ng 2.

4.1 Language

The app will automatically identify the language of your tablet, mobile or PC. If you want to change it inside the application, you must press the icon "disconnect" and in the front page select the language using . It can be found at the upper left.

Using a PC, click on "GD-WiFi" for a WiFi connection or on "USB / WRCT" for a USB connection.



4.2 Set-up

The first adjustment settings are described in the "DEVICE CALIBRATION". You can check or modify the weighing units and roping. Also, you must enter the number of sensors connected to the DELTA.

4.3 Sensor type

In "SENSOR TYPE", select the sensor model connected to the DELTA and the Rope diameter or Belt size.

4.4 IRef

 With the sensor connected to the DELTA but without being installed on the Rope/Belt, click on IRef for all the sensors. You can find it in the menu bar. If you use a mobile phone, click on the scroll menu .

4.5 Install the sensor on the Rope/Belt

Following the IRef install the sensor on the Ropes or Belts.

 For more information about the sensors used in the installation, refer to the installation guide.

4.6 Cabin weight

With the cabin empty, click on "CABIN WEIGHT" and press "Calculate". This is in the menu bar. For the mobile, click on .

Load Wizard

5.1 Allowed deviation range

Define a maximum weighing deviation range allowed for all the load measurements. The default, is 5%.

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5%

5.2 What is the Load Wizard?

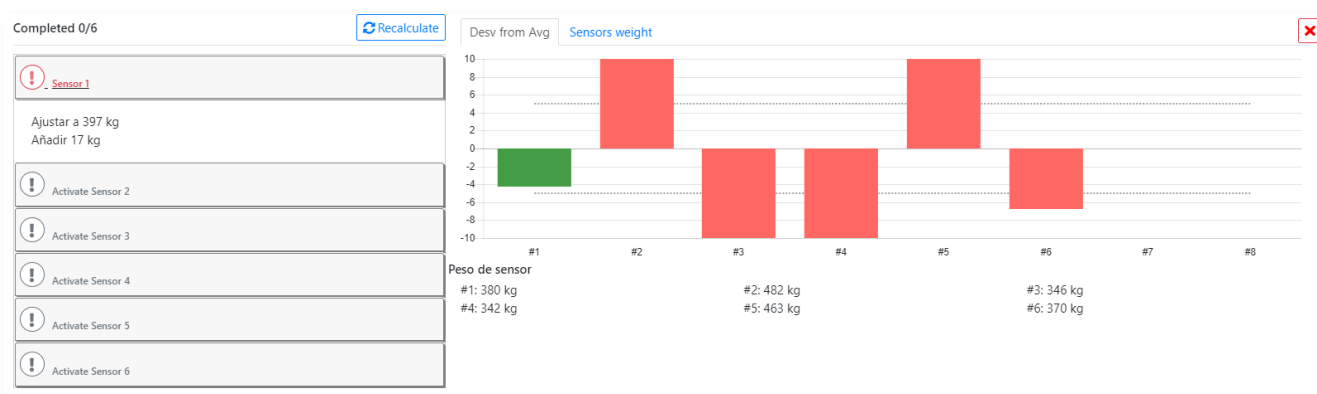
The weighing assistant is part of the app. It makes easier for the load balancing on the Ropes / belts. If the load on a Rope/Belts is out of range, you should use the app assistant for balancing.

Balancing the loads in an installation is not an easy task. When adjusting a Rope/Belt the load is being transferred to the others. Also, after balancing the load and after some cabin traveling, the situation goes to unbalanced. This is caused by rope/belts enlargement, friction and mechanical adjustment. This is where the weighing assistant is useful to reach the minimum unbalance with the minimum hitch points adjustments.


5.3 Rope/Belt tension adjustment

To adjust the tension on the Ropes or Belts, click the Assistant. It can be found in the menu bar, for the mobile phone click on ☰.

The Assistant will calculate and show a graphic display of the load tension for all the Ropes/Belts. To configurate, click on start. The Assistant will calculate the extra load needed for each sensor. If you click one by one over a sensor you will see the action needed. Adjust each Rope/Belt at the hitch points according to the result for each sensor.

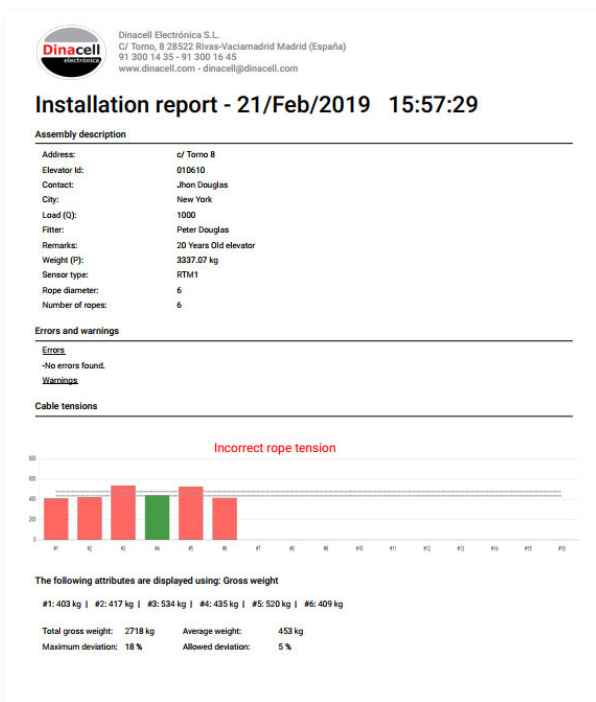


5.4 Checking

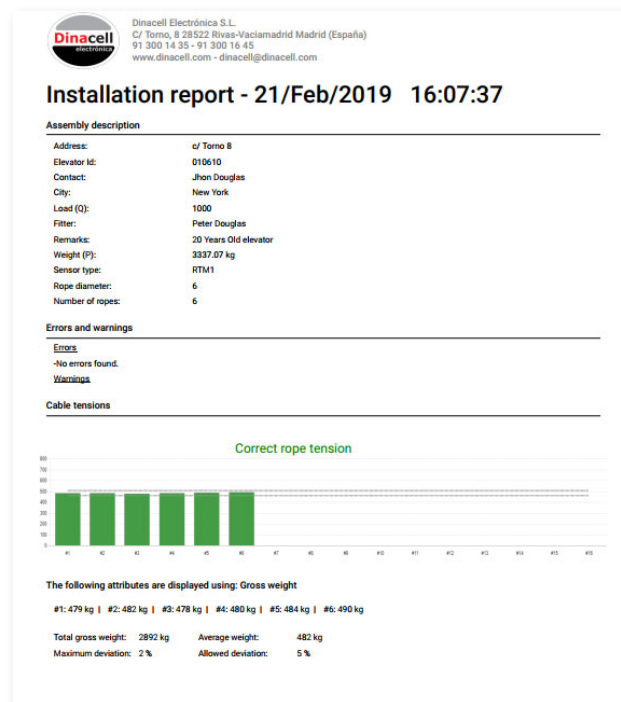
After the final adjustment, click on Re-calculate . All the sensor bars should go to green and with a checked message at the left. In case a sensor is not well-adjusted repeat the operation and re-check again.

6.1 Create Report

The app will generate reports for the current state of the installation. You can fill in, remove or add text fields for the report. When finishing, click on "CREATE REPORT". By making a previous report and another after adjustment, you can follow and control the history of each installation.



Before adjustment



After adjustment

Firmware update

7.1 Updating

It's possible to update the DELTA firmware using the mini-USB port. You will need a mini-USB to USB cable adapter connecting a pen-drive with the firmware new version.

With the DELTA switched OFF, follow the next steps:

- 1) Copy the new firmware (file extension .CYP) in a pen drive.
- 2) Connect the pen drive to the cable adaptor, USB to Mini USB (see chapter 2.1 section 1).
- 3) Connect the cable Mini USB to the connector at the DELTA device.
- 4) Maintain pressed the ON button on the DELTA.
- 5) When the Charge and Link LEDs light up, release the button.
- 6) The Link LED will flash till the updating is complete.
- 7) Wait till the device restarts. This process can take up to 30 seconds.
- 8) Once completed, the unit will start automatically. The link LED will act normally.

Safety

8.1 Battery


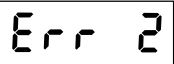
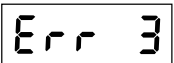
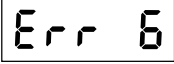
The DELTA contains a Li-ion polymer battery.

- Do not dispose the battery in a fire, or heat the battery.
- Do not use nails, or hit nor step on the battery. Do not subject to strong impacts.
- Do not drop the battery in water or get it wet.
- Do not dismantle the battery. The battery contains some elements that, if damaged, could heat and explode.
- Do not place the battery close to a live fire or high temperatures.
- Do not place the battery under direct sun light.
- Do not place the battery inside car on high temperature days, otherwise the battery could heat, explode or cause ignition. Storing the battery on that condition could also affect its performance.
- Battery disposal: recycle the battery in an approved recycler.

Errors and advice

9.1 Error Codes

The device can detect errors showing the error codes listed in the table:

Error	Description	Action
	Improperly connection. Sensor faulty or cable damaged.	Check the cable and the connections.
	Negative signal overflow. The sensor is working in opposite direction or its incorrectly connected.	Check the sensor.
	Positive overflow. The sensor is supported a load greater than the nominal value.	Check the sensor.
	Memory data loss	Reset the device. Restart the equipment with the values by defect.

9.2 Advices

Advice	Description	Action
IRef overlapped	IRef was not done before installing the sensors in the Ropes/Belts. The cabin weight would not be appropriate.	Remove the sensors from the Ropes/Belts and make IRef.



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