

# HANG-13

## ELECTRONIC DYNAMOMETER

**SINDITO, S.L.**

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## **1. INTRODUCTION**

The Hang-13 weighing units have been designed exclusively for electronic weighing of loads on crane devices. Any other use is considered inappropriate. Proper usage includes adhering to all instructions contained in the operating instructions as well as performing all necessary inspection or maintenance tasks.

This device has been developed using the last electronics technology.

The steel frame is highly resistant and can support the most extremely conditions that normally have the industries or the building sector, where the Hang-13 is used.

This is a carefully designed high-tech product, which will enable you to handle your weighing problems for many years if you handle the unit properly.

We strongly recommend that you read the instructions carefully for precise information on the features and operating principles of this standalone weighing system.

### **1.1. DIRECTIVES AND STANDARDS**

CE directives of reference:

- 2009/23/EC (Non automatic weighing instruments)
- 2004/108/EC (Electromagnetic compatibility)
- 2006/95/EC (Low Voltage)
- 2006/42/EC (Machines)
- 1999/5/EC (Radio equipment); only version with radio module 2002/95/EC; 2003/118/EC; 2002/96/EC ( RoHS and WEEE )

Other Standards or documents of reference:

- FEM1.001
- CEI EN 61000-6-2 / 2006
- CEI EN 61000-6-4 / 2007
- CEI EN 61326-1 / 2007
- CEI EN 55011 / 2009 1999/519/EC recommendation (only version with radio module)
- ETSI EN 301489-3 1.4.1 version (only version with radio module)
- ETSI EN 300220-2 2.1.1 version (only version with radio module)

## **2. SAFETY INSTRUCTIONS**

This section contains some tips on safe operation of Hang-13 series devices.

1. Only battery types approved by the manufacturer should be used. If batteries from other sources are used, personal injury or damage to the device may occur.
2. Batteries must be treated as hazardous waste. Used batteries should not be mixed in with normal household rubbish. Please follow the instructions given by the battery manufacturer concerning battery disposal.
3. To charge the batteries in the device use only the manufacturer's charging unit (for the module, please see accessories). If a different charger unit is used, the device could be damaged and its operating safety adversely affected.
4. Avoid constant high air humidity and condensation. Protect the device against water spray and chemicals.
5. Fully satisfactory operation can only be ensured when the following operating conditions are met:
  - Air humidity: 0 - 90% (without condensation)
  - Ambient temperature: -10°C - +50°C
6. Never perform any repairs on the electrical/mechanical system of the devices yourself. The device must be repaired only by a technical support service authorized by SINDITO, S.L.
7. The manufacturer accepts no liability for any damages arising from nonobservance of the cautions concerning risk contained herein.
8. The weighing system operator should not start any load motion until he makes sure that the load has been safely fastened and no one is in the risk area.
9. Before every load motion the weighing system operator must make sure that the rated load of the weakest elements of the entire load fastening system (load housing elements, fasteners, carrier elements) has not been exceeded.
10. The weighing units must be checked before each use to assure a proper union of all individual parts (shackle, load hooks) particularly for proper seating of all cotter pins.
11. If the worker that controls the weighing unit detects any visible defects, he must remove them immediately. If this is not part of his tasks or he is not sufficiently qualified, if required, he must switch off the device and notify the employer of the defect.

### **3. DESCRIPTION THE DEVICE**

#### **3.1. MATERIALS INCLUDED**

Set of materials supplied with weighing unit HANG-13 are the following: a double protection cell of weighing, an upper pivot, a lower pivot, a battery, and a display unit and electronic weight measurement.

Remote functions and data transmission from the weighing device are done through an infrared system or via radio.

Depending on use, the HANG-13 range, have different equipments with various capacities, that can be stated in Kilos or Tones.

<b>HANG-13</b>
1.000 Kg / 200 g
2.000 Kg / 500 g
3.200 Kg / 500 g
5.000 Kg / 1 Kg
6.300 Kg / 1 Kg
10.000 Kg / 2 Kg
12.000 Kg / 5 Kg
16.000 Kg / 5 Kg
20.000 Kg / 10 Kg
25.000 Kg / 10 Kg
30.000 Kg / 20 Kg
40.000 Kg / 20 Kg

The weighing unit is supplied in a carton box perfectly protected for its transport. With the following:

- 1 electronic device
- 2 shackles
- 1 swivel hook
- 1 ring
- 1 battery charger
- 1 remote control (option)
- User Manual (CD or paper).
- CE Declaration of Conformity
- Guarantee

Check that your parcel contains all the mentioned elements and check material has not been damaged by the transport. If required, please contact SINDITO or your usual supplier.

## **4. TECHNICAL DATA**

Capability:	From 1.000 to 40.000 Kg
Accuracy:	0,03%
Display:	LCD display digits of 75mm.
Power supply by:	Rechargeable battery long use
Max temperature :	-10°C to +50°C
Frame:	painted

Weight ratio and fractions on the devices are the following. However, we can manufacture devices with specifications required by a customer.

<b>HANG-13</b>
1.000 Kg / 200 g
2.000 Kg / 500 g
3.200 Kg / 500 g
5.000 Kg / 1 Kg
6.300 Kg / 1 Kg
10.000 Kg / 2 Kg
12.000 Kg / 5 Kg
16.000 Kg / 5 Kg
20.000 Kg / 10 Kg
25.000 Kg / 10 Kg
30.000 Kg / 20 Kg
40.000 Kg / 20 Kg

### **4.1 LOAD CELL**

Our load cells provide a signal 2mV/V in a range of 3.000 divisions.

## 5. INSTRUCTIONS OF USE

### 5.1.1. STARTING AND DISCONNECTION THE DEVICE



To switch on the device you have to assembly the hoop, the shackles and the hook. (See the picture).

Before to switch on the device, disconnect the connector from the base of charge, if it is connected.

Hang the device from the hoop to the hook of a hoist or to any other raising element. To switch on the device press the “On/Off” button on the front panel. On the display will appear the board version and after starts the auto-test, will appear a sequence of numbers from 0 to 9 in all the digits.

It is to assure that all the digits and their segments are working perfectly.

Once finished the sequence of Auto-Test will appear “0” in the display and we can start to use the device.

To switch off, press the “On-Off” button during various seconds.

In case that after start the device appears the word “CARGA”, you have to press “TARA”.

That means we have started the device with some kind of weight or any element of the raising system in suspension (cargo sling, chains, etc)

Be aware about the raising system of a charge(cargo sling, chains, etc) at the moment to make a weighing, in order to have a correct weight, we have to measure the device with the raising system in suspension. There are other indirect ways to get the real weight of the charge, but the described one is the most usual.

### 5.1.2. FRONT PANEL BUTTONS & INDICATORS

The functions of the buttons are the following:

*ON/OFF* Switch on & switch off the device

*TARA* Put the display at zero.

#### 5.1.3. FRONT PANEL BUTTONS FOR DEVICES WITH A PRINTER

The functions of the buttons are the following:

- ON/OFF*            Start and switch off the device.
- TARA*                Put the display at zero.
- “M+” SUM*        Sum up the weight and memorize it.
- “RM” TOTAL*     Displays the sum up of all the partial weights done.
- “M=0” DELETE* The display flash the weight during some seconds, and after the total weight accumulated and the partials weights erased.

How to make a sum up of multiples weights: Every time that we make a weighty we press the M+ button to get it in the memory. Do the same on each weighty. When we have finished, press the RM button and the display will show the TOTAL WEIGHT accumulated.

If we want to do sum up and continuous, that means accumulate the following weighty to the total weight showed, press again M+ or SUM. The registered value will be accumulated to the previous total. In every moment pressing the RM-TOTAL button the display will show the accumulated value of the weighty done.

*Note:* In some specific cases, the meaning of the buttons can be different from the described. On these cases we will send a specific manual.

#### 5.1.4. MESSAGES ON THE DISPLAY

The Basic messages that appears are the following:

- ALTO o CARGA* Appears when the device have a overcharge.
- BAJO*                Appears when the device have a negative overcharge
- OFF*                 Appears when we press the button to Switch off the device
- BATER*             Flashing when detects the battery is low. After some seconds the device will get switch off.
- HECHA*             The calibration is complete.
- TARA*                The tare of the device is being done.

For other devices with especial functions there are other type of messages:

- SUM*                 Means that the current weight is accumulated in the memory that have the record of the previous weights.
- TOTAL*             Means that the total of all the weights has been finished and shows the result.
- DELETE*            Means that will erase the total of weights and the partial weights
- ERROR*            When you try to accumulate a measure without changing the weight or you try to accumulate a value too low. When you press SUM to add the



value of weighty and the charge/weighty is not stabilized. In this case stabilize the weight and press again SUM.

*“EEEE” o ALTO* Appears when the total sum up of the weights exceed the numerical limit that can appear on the display (vg 99999) or if you try to memorize negative quantities.

When you are making the calibration the messages are the following:

<i>CERO</i>	You have put the zero on the converter.
<i>BAJA</i>	The signal delivered by the cell is too low and can not be calibrated
<i>ALTA</i>	The signal delivered by the cell is too high and can not be calibrated.
<i>CALIB</i>	The calibration is being done at this moment.
<i>HECHA</i>	The calibration finished completely.

## 5.2. OPTIONS

### 5.2.1. DISPLAY OPCTIONS

We have 2 basic systems of viewing the data: LCD Liquid Crystal and 7 segments Display.

Both of them are compatibles with all our products and the use of them depends on the working environment. There are different sizes, depending on the customers needs.

### 5.2.2. MAXIMUM PEAK OPTION

The “Maximum Peak” option allows to register “maximum pull” produced when you are raising a charge. To get it:

- Switch on the display till the message “CERO” appears.
- Press the button “TARA” continuously till appear on the screen the word “PICOS”.

At this moment the device go from the normal weight to the “Maximum Peak”.

Raise the weight that we will test and will appear the data registered on the display. This data will appear on the display till a new “Peak” replace it, because is higher that the previous one or due we are leaving this function of maximum peak.

- To leave the program of “Maximum Peak” press the button “TARA” continuously till appears on the screen “noPIC”, and then the weighty will be the normal one.

If you want to get again the “Maximum Peak”, please repeat the points before detailed.

### 5.2.3. RS-232 OPTION

The RS-232 option is to communicate different devices, when the distance is not more than 15 meters.

This function is used when the device is connected to a PC to register the data of each weighty.

We have a protocol of communications , that is the following:

- Communications protocol:

- Speed of transmission 1200 Bauds

- Data 8 Bits

- Starting Bits 1 Bit

- Stop Bits 2 Bit

- The sequence of transmission is the following (8 bits consecutives):

- Start Byte: 2 (STX)

- Sign Byte: 43 (+) / 45 (-)

- Tens thousand Byte : Value in ASCII

- Units thousand Byte: Value in ASCII

- Hundreds Byte: Value in ASCII

- Tens Byte: Value in ASCII

- Units Byte : Value in ASCII Finishing Byte 3 (EXT)

- Codes

- CODE 0 – Weighty in REAL time.

- CODE 1 - Means that a TARE has been done.

- CODE 5 – Transmission of stable weighty

- The connections of the connector Sub-D of 9 pins that are out on our device are the following:

- Pin 3 – Output data

- Pin 5 - GND

***Note:** The data transmission to the Pc or computer is done through the button "SEND", when you have a remote control or through an additional button in the front cover..*

#### **5.2.4. 4...20 mA OUTPUT OPTION**

With this option, we can get a proportional 4/20 mA output signal to the weight, that means, with the weight at 0 Kg. we get 4mA and with the device at the maximum deep of the scale we get 20mA.

The connections of the connector Sub-D of 9 pins that get out from our device are the following:

- Output 4 –20 mA connector Sub-D of 9 pins : Pin 1: Output +

- Pin 5: Output -

- Salida 4 –20 mA del conector Sub-D de 9 pines : Pin 1: Salida +

- Pin 5: Salida –

#### 5.2.5. LOAD PRESET OPTION

The preset of load is useful for different applications. For example to limit the load that can be raised by our crane or to mix parts or to count pieces.

The relay output of our devices have a switch contact that can support up to 10A current at 250Vac of nominal current.

Default, we can supply devices with 3 presets of charge, depending on the system needs.

#### 5.2.6. 24H SERVICE OPTION

It is to get 2 interchangeable batteries to get the device working the whole day.

#### 5.2.7. REMOTE CONTROL OPTION

The function of the remote controls, is to make operations without using the buttons on the front panel of the device, to work comfortably

We have available 2 types of remote controls: one way or bidirectional. The one way only send signals. We can supply them working through infrared or via radio, the use of one or other depends on the working environment.

Generally, the remote control via radio can be used in all kind of working environment. The remote controls by infrared only can be used in working environments where the sunlight is not entering directly to the devices.

The basic configurations of these remote controls, are the following:



**Note:** The functions of these remote controls are detailed in the section "Front panel buttons & indicators, in spite that the functions can be different, depending on the customers request.

#### 5.2.8. ANTI COLLISION PROTECTION OPTION

All the range of products have the anti collision option, being protected the device from shocks and minimizing the damage of the device.

### 5.2.9. HEAT PROTECTION OPTION

HANG-13 family can be supplied with a heat protection (optional), to protect the device from higher temperatures in hard working environments as foundries, etc.

Avoid the use of the device during long time in these hard working environment conditions due they can damage severely the device.

### 5.2.10. PRINTER OPTION

The equipments with printer included are operated through the remote control, supplied with the standard equipment.

The most used printer is the one in the picture.



Green led switching on	Printer open and ready.
Green led flashing	Printer without paper or paper not detected

Printer have a push button to advance automatically the paper after a printing has been done.

To change paper, press the button-led to switch on the printer (green), and the cover will open. Replace the paper roll by a new one, get out a piece of paper through the groove and close the cover.

#### Set the Date and Hour:

- Switch on the equipment and when appears the number "33333" press the TARE button.
- When appears the number "77777" press again the TARE button.
- At this moment we can make the hour set. Using the buttons "RM" and "M+" will increase or decrease the hour number. Once we have fixed the hour, we will press during almost 3 seconds the TARE button and the hour will be internally memorized. Automatically will ask to set the minutes, and we will follow the same procedure we have done to fix the hour. After we will set the day, month and year, and we will repeat the same procedure done by the hour and minutes.
- After introducing the last required data ( the year) and validate it, will appear the message "ENVIAR" (SEND). Press during almost 3 seconds the TARE button and a ticket will be printed with the date and the hour introduced. Check if it is correct and if not adjust it again.
- To finish press shortly the TARE button and automatically will leave the date and hour configuration menu, and the equipment will restart.

The standard format is 24 hours and the date is DD/MM/YY.

## **6. MAINTENANCE**

Except for replacing or recharging the batteries, the HANG-13 dynamometer requires no maintenance care.

### **6.1. CLEANING**

To clean the dynamometer, never use grinding systems, solvents or wax compounds as these products could damage the finish. If an in-depth cleaning is required, use a cotton cloth moistened with soapy water and wipe the dynamometer carefully, then clean the device with the cloth.

### **6.2. TROUBLESHOOTING**

The robust construction and careful design of the unit ensures that breakdowns are almost impossible. However, should this be the case, the user may repair only those related to used-up or defective batteries. These types of breakdowns are the most frequently found equipment faults.

<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The hook or device are not starting BATER message appears on the display	On/Off button damaged  Battery is empty.	Send to the manufacturer for a change.  Put the battery to charge during some hours
In the starting test all the digits are not switched on	Display damaged	Display has to be changed for the manufacturer.
Alter passing the test the "0" is not appearing on the display	Some raising elements are hanging on the device before it is switch on.  Displaced cells for over charge.	Press Tara alter finishing the Test.  Send it to the manufacturer.
The buttons are not working with the display switch on	Defective buttons	Send to the manufacturer to repair.
Weight incorrectly	Device not adjusted or bad state of the cell	Contact with the manufacturer
No repeat the weight correctly	Bad state of the cell	Contact with the manufacturer or repair
The charger Light is not switch on.	No current on the net  Bad contact on the power  Defective charger	Check the current arrives.  Replace by a new one.  Replace by a new one.

All other faults not described in this manual must be repaired by a technical support body authorized by SINDITO, S.L.

### 6.3. BATTERY CHARGING INSTRUCTIONS

- These devices have a rechargeable battery with an autonomy of 80 hours more or less, depending on the weight conditions.
- It is necessary to recharge completely the battery (minimum : 8 hours), when on the display appears the word, "BATER".
- You must charge the battery through the adapter of porter supplied by the manufacturer. Please before to do, check the voltage is the required by the charger.
- We recommend do not leave to exhaust the battery, to prolong the battery use

### 6.4. BATTERY CHARGING INSTRUCTIONS IN 24H SERVICE

- The devices on service for 24h we need and additional pack of batteries, in order to replace the other pack previously charged, in order to get always one pack of batteries charged available to use.
- In case the device is not in use for long time, is better to remove the batteries out and store the batteries charged, for getting a long life performance.

### 6.5. BATTERIES REPLACEMENT

- When the time of use of the batteries duly charged is decreasing substantially, you will have to replace the batteries for a new pack of them, using the supplied by the manufacturer.
- **NOTE:** To Project the environment, don't forget to leave the old batteries in the points of recycle.

### 6.6. CALIBRATION

The dynamometer you have purchased has been calibrated at works and no recalibration is required. To ensure the precision of the equipment, however, it can be recalibrated every two years. This calibration must be performed by a SINDITO. technician. Only this technician is allowed to remove the dynamometer seal and reseal the calibration.