**AIRCRAFTSCALES.COM**

**WIRELESS WEIGHING INSTRUCTIONS.**


**HH2400-3-xxCS  Wireless scale system**

**www.aircraftscales.com**

**561-281-6179**

# INTRODUCTION

Thank you for your purchase of our wireless scale system please read and understand the entire instructions, as wireless weighing is a little bit different than traditional wired systems.

Wireless weighing has evolved in the past few years, it has many good points and applications but first you must consider all the variable conditions and system operation to insure your readings are correct.

This system uses the 2.4 Ghz range to transmit and receive. In standard conditions its range is about 100ft and signal strength is one of the most important considerations. Transmission and receiving is conducted using a "Base Station" HH2400 for short and a load cell installed "Receiver Transmitter" RT for short. The system also is capable of being used with a lap top computer or a PC type computer with the proper software installed.

# DESCRIPTIONS

Introduction Overview

The HH2400 is an advanced handheld display. This allows wireless remote viewing of multiple top of jack load cells and platforms using 2.4GHz radio. The HH2400 also performs the function of optionally waking the remote devices when it is turned on and sending them to deep sleep mode when it is turned off. The handheld can operate in two modes. The operation of the buttons and the automatic sleep/wake functions are dependent on these modes.

Communications Overview

The HH2400 range of telemetry devices and our M2400 laptop computer units each have a factory set unique ID. Data is shared between devices using Data Provider messages. A device generates these messages which can then be used by many other devices simultaneously.

These messages ( or packets ) of information contain a single value of data and each is identified by a Data Tag. The Data Tag should be unique for each message. ID Identifies each device.  Each device has a unique ID that is factory set. This is represented as a 6 character hexadecimal number consisting of the digits 0 to 9 and the letters A to F. I.e. FFD3BE Data Tag Identifies each Data Provider message A Data Tag consists of a 4 character hexadecimal number consisting of the digits 0 to 9 and the letters A to F.

The Data Tag can be changed by the user but the factory default is to match the last 4 characters of the device ID. I.e. An acquisition device of ID FFC12B would have a default Data Tag of C12B. When a device consumes data (i.e. a handheld displaying data from an acquisition device) all it is doing is listening to all of the Data Provider messages and selecting the one it wants to use. It then extracts the data and displays it. Some devices that use Data Provider messages also need to know the ID of the device providing the data. This is necessary if that device needs to specifically wake the data providing device as opposed to using a broadcast wake that will wake all devices on the same channel and using the same encryption key. Pairing offers an automated method of hooking a provider and consumer of data together.

## Getting Started

Your HH2400 requires 2 X AA alkaline batteries (factory installed) for the handheld and a 3 Volt dc supply for the load cell module(s) which may also be a pair of AA batteries (factory installed)  Your complete system has new batteries installed and will be ready to use right out of the box.  If you have an issue with start up or a cell does not wake up, check your batteries first.

## Batteries

Remove the two screws on the rear battery compartment. Insert two alkaline AA batteries we recommend Energizer or Dura Cell batteries. Refit the battery compartment cover.

The HH2400 will turn on as soon as the batteries are installed, so it should be turned off until it is ready. To turn off just hold down the power key until the display shows BUSY then release it.

## Load cell modules

Each cell has a “Dongle” type wireless module.  Remove the four screws and lift the lid, be careful to not disconnect the antenna connection wire during this process.

Remove the batteries and reinstall new batteries.

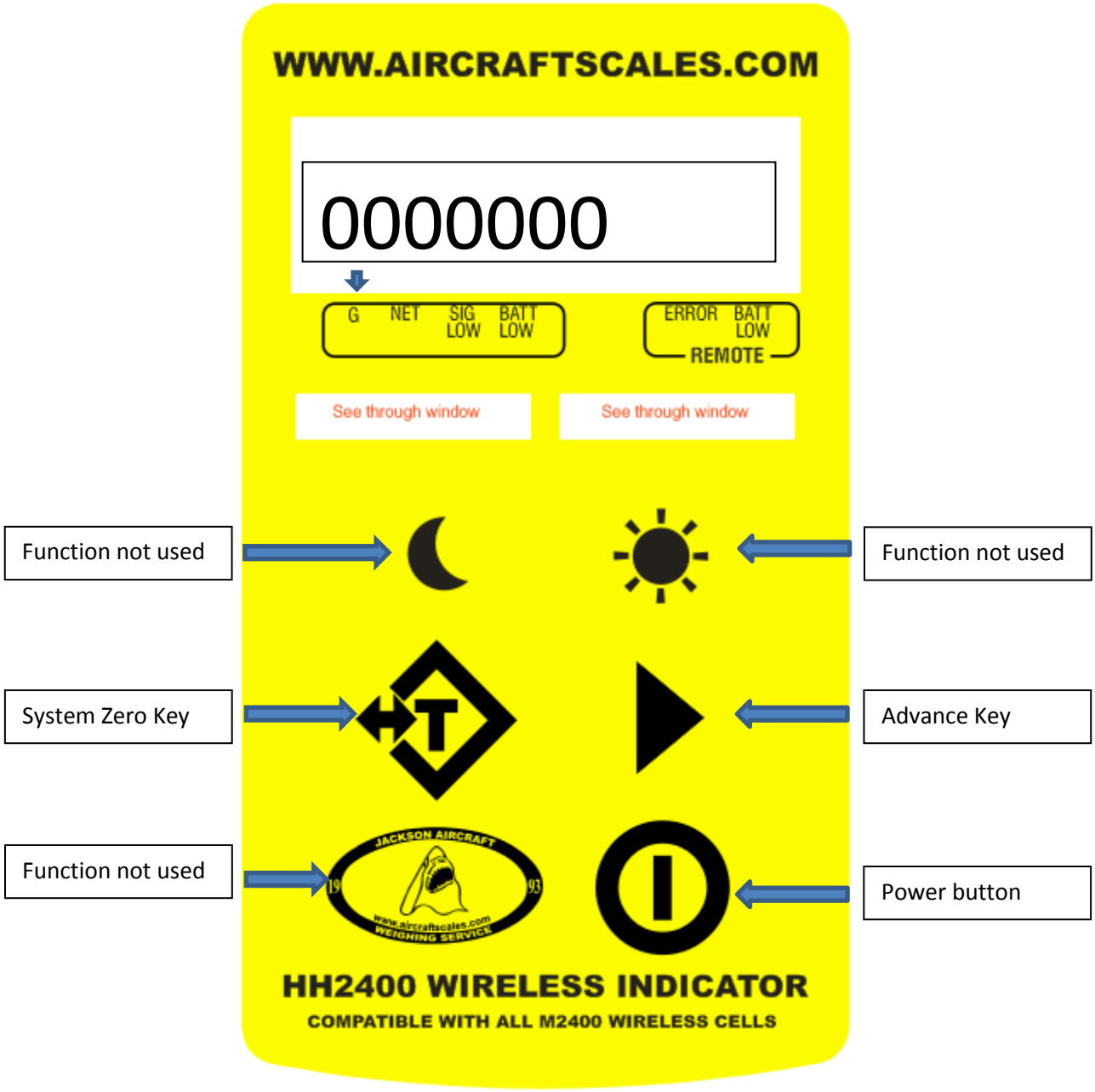
Once the batteries are installed make sure the indicator red LED light is flashing.  If not then remove or roll the batteries in place to make a good connection.

## Module power up

The module will power up and indicate with a red flashing LED, this needs to be checked on battery install or any time the unit powers up to make sure the cell is awake.

Check each cell on HH2400 power up to ensure the lights on all the cells are flashing.

Your system is ready to go, all battery powered with battery life of 1.5 months.  Batteries can be changed any time in the field and will also be changed when the unit is returned for calibration.



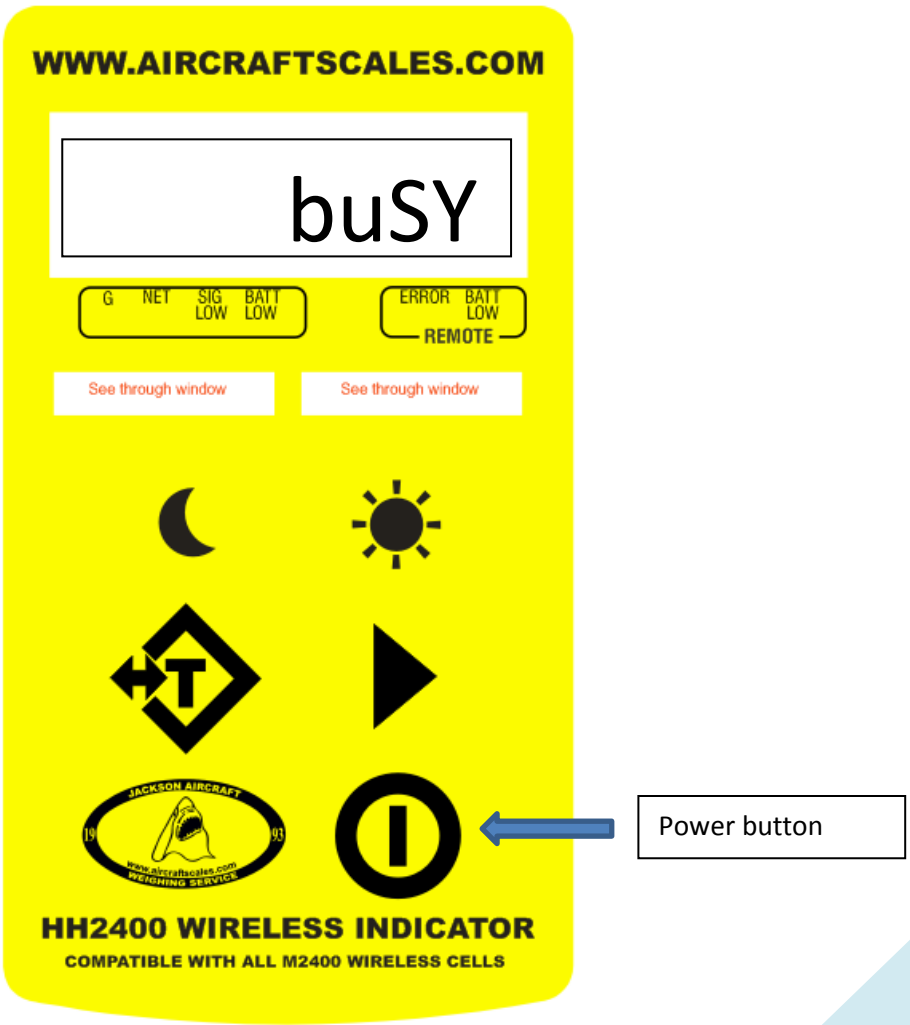

Lay out of the HH2400 face plate.

Power button

Press and hold the power key till the indicator “Boots” and shows the test 888888888. The “uEr software version is shown next, and then release the key. The display will show BUSY. The power key can also be used, by giving a quick press, to reset the Auto-Sleep delay and re-wake your cells. The cells and system is designed to power down after 60 minutes automatically.

Once the unit powers up, it will display in “Result” mode. Result mode is the total of all the active load cells and may indicate a number.

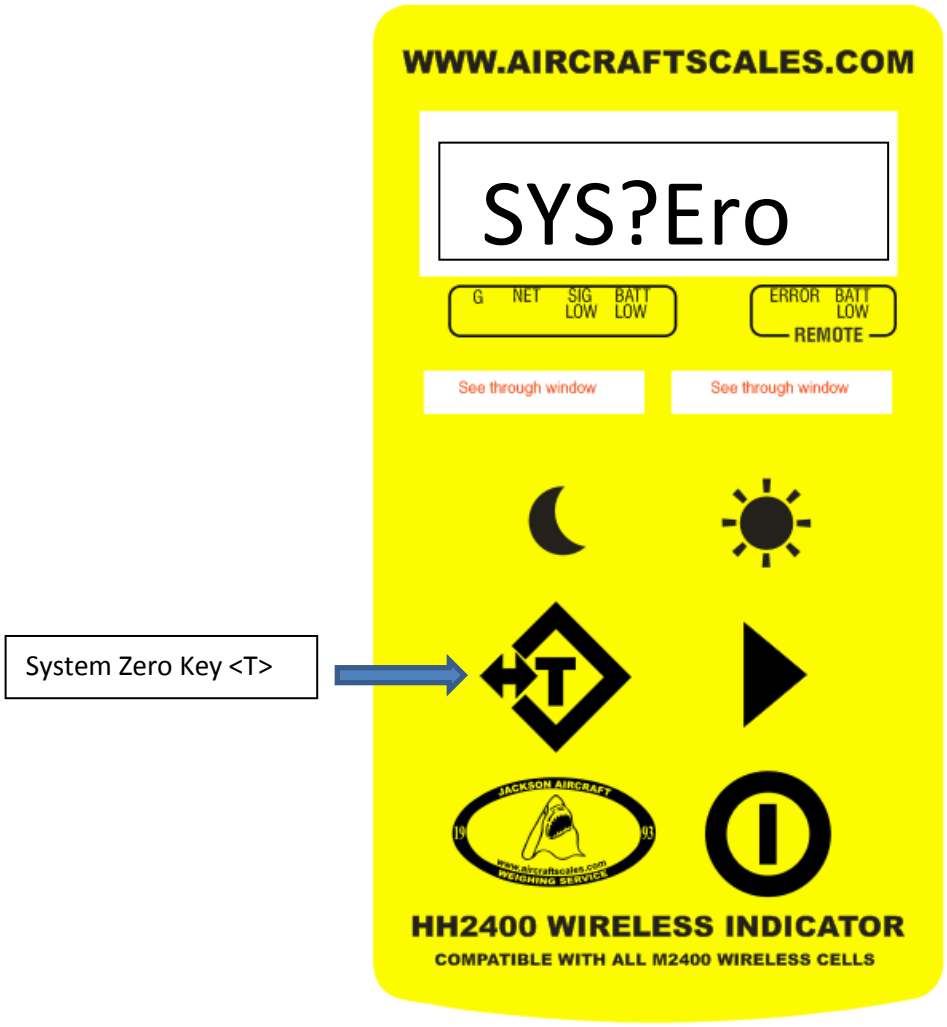
If the scale is showing a number or not, you will want to “Zero” the scale and all the channels. With the system on and reading “G” Gross, use the System Zero Tare key.



System Zero Key <T>

**<T>** TARE key. This will toggle between gross and zeroed net mode. I.e. If the display shows gross then pressing the key and holding will zero the display. The display will read "System Zero" and then Zero all channels. Pressing the key quickly will advance the Gross "G" selection to "Net" display.

Pressing the **<T>** key when in net mode will return the display to gross mode. Gross and Net are retained through power off. Step to the next device.




On power up the unit is set to default and read the total weight of all cells. In this mode, pressing the tare key and holding it will force a System Zero.

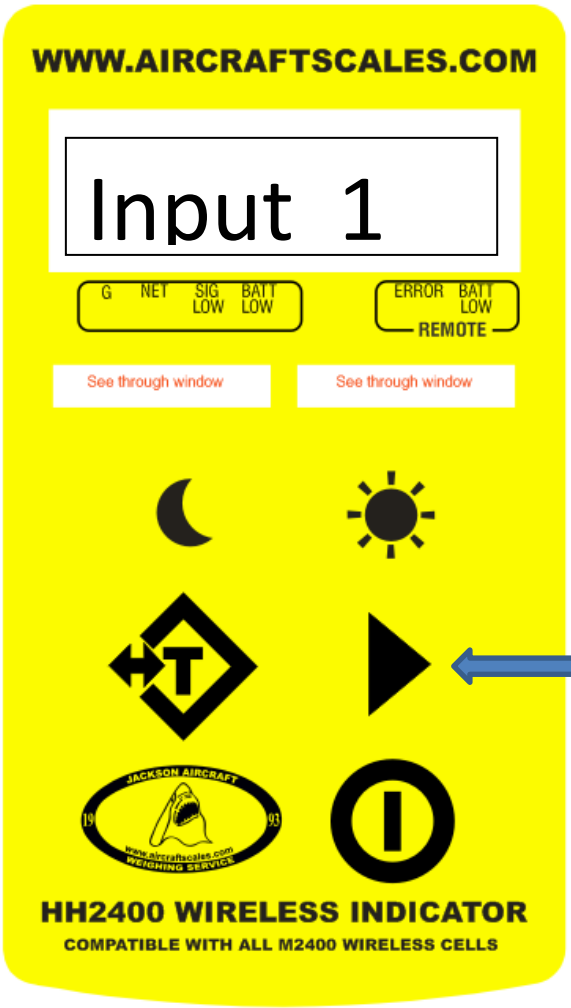
Advance Key

Using the advance key

Advancing to view all the inputs is easy, press and hold the key for 1 second and the display will show “Input 1” This is Scale 1 or Channel 1 the Red load cell. The display will remain for approximately 5 seconds then revert to the Result or total mode again.

Result

Total of all scales




INPUT 1 Channel 1 Red

INPUT 2 Channel 2 Blue

INPUT 3 Channel 1 Yellow

Advance Key

Pressing the advance key while reading “Input 1” will move the indicator to “Input 2” .

Pressing the advance key while reading “Input 2” will move the indicator to “Input 3”

Pressing the advance key while reading “Input 3” will move the indicator back to the result or total mode and the unit will sum all the inputs for a total weight.

HH2400 capability

Up to 12 individual devices can be connected, and the user can step through each one in sequence. The HH2400 is set to wake all configured devices when turned on and send them all to sleep when turned off.

When the handheld wakes the cells, it is achieved through the transmission of a broadcast wake. I.e. all devices on the same channel and with the same encryption key will wake.

Sleep command by pushing and holding the power button operates the same.

Systems upgrade capability

Your wireless system can be upgraded by use of a laptop computer and our software. The wireless products we manufacture are all compatible and capable of upgrades.

Our M2400 system is laptop based and is run on a laptop computer. We use a USB antenna for transmission and receiving the same cell wireless modules that the HH2400 system indication uses.

Our M2400 system is capable of multiple read outs, standard screen shots, MAP screen and full print out capability.

You can update to a laptop computer from us or use one of our own, all you need is our software install key and a USB antenna.

# Pre weigh set up of cells and adapters


Note: It is very important that the cell top jack pad adapters are screwed in all the way as shown with no air gap, adapter must bottom on the cell top.

No removal of the cell top is authorized, do not remove the cell top and replace the cup with any other device. Do not break torque on the cell top, any cell that has had the cell top removed or torque broken will require return to Jackson Aircraft Weighing for inspection, testing and recertification.

If a load cell is dropped, it shall not be used. Return the cell to Jackson Aircraft Weighing for testing and proper calibration

# Note:  Improper use may result in damage


Below is a picture of an improper install, note that the adapter is not all the way bottomed and there is an air gap.  Cells with air gap will read incorrectly, can be damaged and may cause damage to the aircraft.

No removal of the cell top is authorized, do not remove the cell top and replace the cup with any other device.  Do not break torque on the cell top, any cell that has had the cell top removed or torque broken will require return to Jackson Aircraft Weighing for inspection, testing and recertification.

# Jackson Aircraft Weighing Systems

Scale instructions for set up and use of the HH2400 wireless system:

1. Screw in the cell to jack ram one inch adapter on the bottom of the cell and position the cells on the aircraft jacks, follow the aircraft manufactures instructions for jacking and weighing operations.
2. Power up the HH2400 in a location where all cells can be seen.
3. The HH2400 is now ON and displays in result/total mode. Each cells module should now be on as indicated by the flashing red LED light on each cells module box.
4. Press the **<T>** function key to apply the "System Zero" command, the scale should now display "0" with no weight on the cells and read "Gross" for gross weight.
5. The scale is now ready for use; place the load cells on top of the jacks. Jack and level the aircraft as per the aircraft manufactures instructions. Lower the aircraft and recheck the scale zero, jack and level the aircraft again as per the aircraft manufactures instructions.
6. With the aircraft raised and leveled, the HH2400 now reads in the "Result/Total" mode.
7. To read the result weight of each channel as indicated, use the advance key to view the inputs progressively: Input 1= Channel #1 Red, Input 2 = Channel #2 Blue, Input 3 = Channel #3 Yellow and for 4 channel systems, Input 4 = Channel #4 Green.
8. Scrolling through all inputs will bring the unit back to "Result/Total" reading mode.
9. Ensure that during the process that all channels remain on and the signal strength is strong with no "SIG LOW" indication warning on the main screen.
10. After recording the weight of the channels, lower the aircraft and check for "scale drift" on each channel. If the scale does not return to "0" scroll back through the screens to determine the cell or cells that are reading other than 00000.
11. Positive number should be deducted from the total weight of each channel
12. Negative number should be added to the total weight of each channel.
13. Repeat the above procedure at least once to confirm weight readings.
14. Turn the unit OFF using the power key and return all item to the case

Do not attempt to make any adjustments to the scale, only use the functions as noted above. If you have any questions please contact Jackson Aircraft Weighing Service.

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