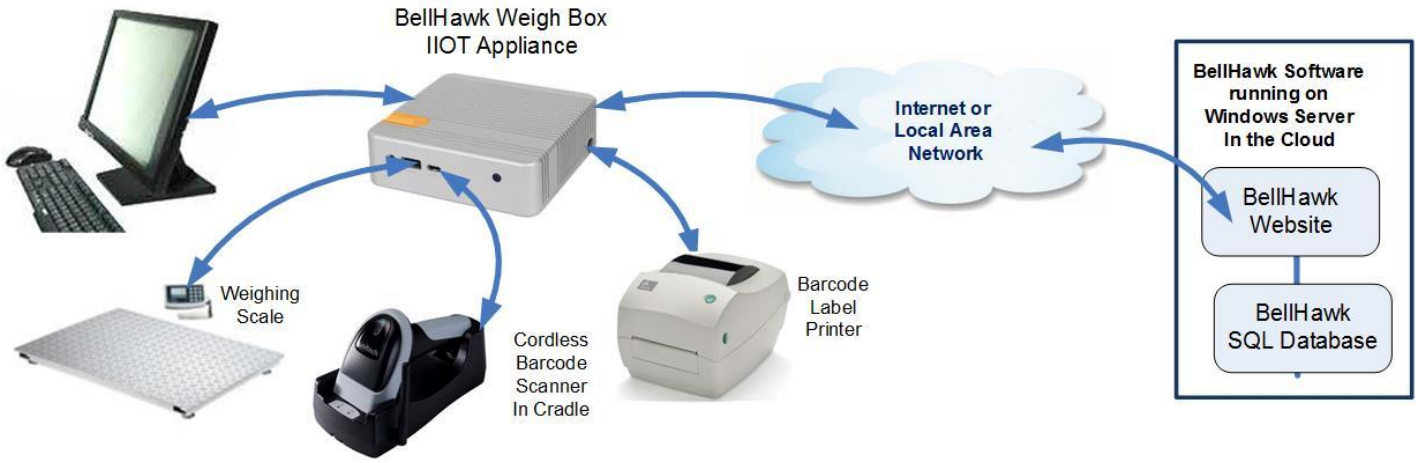
BellHawk Data Sheet
Weighing Scale Option

The BellHawk Weighing Scale Option (BH-WSO) enables the capture of weights from weighing scales. This avoids errors with the capture of weight data.



This software is normally run in a Windows Enterprise based IIOT appliance, referred to as a "Weigh Box", but can also be run on any Windows workstation based computer.

Typically, one or more collocated weighing scales are connected to a Weigh Box which can support, for example, a floor weighing scale and a bench scale, to enable the use of different scales according to the materials being weighed.

As standard data is collected from each weighing scales via an RS232 interface to the electronic controller for the scale but USB, Bluetooth and Ethernet connections can also be supported.

Software running in the weigh box periodically reads each weighing scale by sending an interrogation string to its controller. If the weight has changed significantly from the last reading, this program makes a number of readings until it detects a new stable weight. It then sends this new stable weight to the web-services interface of the BellHawk software, where this weight is stored in the BellHawk database.

If a Weigh Box is in use, an additional feature is turned on, for appropriate BellHawk transactions, to enable material quantities to be recorded from a weighing scale, if either the primary or secondary units of measure (UOM) for the material being entered are of type weight and the weight UOM is selected for data entry.

In this case, when using a BellHawk transaction to record materials in or out, the weighing scale to be used is selected by scanning a barcode on the weighing scale. The measured gross weight, along with the stored tare weight for the selected container type, is then displayed on the PC or mobile device web browser screen. The net weight is also computed from the measured gross weight less the stored tare weight of the container previously selected and shown on the screen.

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When the transaction is completed, this net weight is then recorded as the net weight of the contents of the container in the BellHawk database, if weight is the primary UOM. If weight is the secondary UOM then the net weight is converted into a count, length, or area quantity depending on the conversion factor stored in BellHawk for the material in question.

The Weigh Box can also be used as a data collection terminal, with a monitor plugged into its HDMI port and a mouse and keyboard plugged into its USB port, to run a BellHawk web browser session. In this case, the Weigh Box can also have a barcode label printer plugged into its USB port, enabling a label to be printed out for each container that includes the weight of the materials in the container. Also, if the setup data for the item includes a conversion factor, such length per unit weight or count per unit weight, then the printed label can also include the length or count of the materials on or in the container.

The weighing scale parameters (such as name, interrogation period and delta value for new stable weight) are setup through an Excel spread sheet that is imported into BellHawk using the standard BellHawk Excel setup import mechanism.

The connection to weighing scales can require customization, depending on the model of weighing scales and the interface in use. Some scales can respond to a simple interrogation string, returning a number, representing the weight in some pre-determined unit of measure. In this case, the interrogation string in the weighing scales software can be setup through the Excel import table. But, in other cases, the Weigh Box software needs to be customized for more complex interaction protocols with the weighing scale.

The weighing scale software consists of a Python script plus .Net libraries, which handle the communications with BellHawk. The Python script can be readily modified for different weighing scale interfaces and protocols

The Weighing Scale Option software communicates with BellHawk via its web-services interface, enabling weighing scales in multiple distributed locations to be used with a BellHawk server running in the Cloud at a data center thousands of miles away. All that is needed is for the Weigh Box to have an external connection to the Internet as there is no need for any special “holes” in the local Internet firewall for a Weigh Box to communicate with its server.

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