BinTrac

Bin Scale System Operation Manual

HerdStar

Table of Contents

BI**N**T**RAC**

Thank you for purchasing a BinTrac bin scale system from HerdStar, LLC.

Overview

Your BinTrac system provides a cost effective way to automatically monitor bin levels, facilitating just-in-time deliveries and minimizing out-of-material events that impact production performance.

Components

A BinTrac system consists of four basic components:

BinTrac Indicator

This is the main unit of the BinTrac system. The BinTrac communicates with the Smart Summing Boxes to register the weight of material in the bins. The material level is computed and displayed on the LED bar graph. One bin indicator can monitor up to four bins.

Load Cell Bracket

Four or more loadcell brackets allow the BinTrac to accurately measure the material weight in your bins. The Smart Summing Box averages the signals from all brackets to minimize errors that could result from voids (holes) in the material.

Smart Summing Box

A single Smart Summing Box per bin communicates the current reading on the leg brackets to the BinTrac indicator.

BinTrac Power Supply

This provides the power for the BinTrac system. The power supply converts the line voltage to low voltage.

Features

Auto Sequence Mode

BinTrac sequentially displays the level for each bin every five seconds.

Bin Level Alert

BinTrac features a relay to trigger an indicator light or audible alert when feed levels get above or below the level you set.

Fill Events

BinTrac Monitor records the net weight increase of the last four fill events for each enabled bin.

24hr Usage

BinTrac Monitor records the last four operational 24 hour usage amounts. These usage amounts are the total usage for all enabled bins for that 24 hour period.

Remote Display

A BinTrac Monitor can be configured as a Remote Display which will display the same updated weight information from the host BinTrac Monitor.

BinTrac.com

Multiple BinTrac Monitors can be networked and remotely displayed through an internet web-browser.   View www.bintrac.com and sign in as a guest user-name: guest   password: guest.

System Setup

The units are easily wired by a qualified technician using standard communication wiring. See BinTrac Pro installation manual for detailed wiring information. The System setup has two levels of settings: 1) Operation Settings: These are settings that may be changed for normal use by an operator and 2) System Settings: These are a one-time setup usually done at the time of installation.

Operation Settings

New BinTrac installations require a one-time system configuration procedure before use. In this mode you can configure the number of bins you wish to monitor.

Selecting Bins

This procedure will allow you to enable the BinTrac Monitor to only scan and display the weights of bins that are connected.

1. On the BINTRAC Controller, press and hold the BIN key for approximately 8 seconds. The bin level gauge will go blank, and all of the bin selector indicators will illuminate showing their current status. If a bin indicator is on steady, it is selected as being monitored. If the indicator is flashing, that bin is not being monitored.

2. Press the BIN key to select the desired bin.

3. Press the UPPER ▲ key to proceed. The indicator for bin "A" will remain on, and all others will turn off. If the indicator is on steady, "A" bin is being monitored. If it is flashing, the bin is not being monitored. Press the UPPER ▲ or LOWER ▽ key to toggle bin monitoring on or off.

4. Repeat steps 2-3 for additional bins.

5. Unit returns to Auto Sequence mode after this procedure and will start auto sequencing after 20 seconds of no activity (no keystrokes).

Calibrate Bin Empty (Zero)

This procedure will zero the BinTrac weight by correcting for the dead-load of the empty bin.

1. Press the BIN key to select desired Bin.
2. Press and hold the UPPER ▲ and LOWER ▽ keys for 5 seconds. While held, the bar graph and bin indicators will flash until 5 seconds have passed and the indicated bin level has been zeroed.

3. Unit returns to Auto Sequence mode after this procedure and will start auto sequencing after 20 seconds of no activity (no keystrokes).

Program Alert Level

This procedure adjusts the level that the output (alert) relay is triggered. The output relay has both normally open and normally closed contacts.

1. Press and hold the LOWER ▽ key for 5 seconds.

2. After 5 seconds the bar graph, and Bin A or lowest enabled bin will begin flashing.

3. Press BIN to select the desired Bin.

4. Use UPPER △ or LOWER ▽ key to adjust alert level.

5. If alert level is set to one of the upper 8 indicators (top half of the bin), alert is configured as a high level alert. The output relay will trigger when the indicated bin level is at or above this point.

6. If alert level is set to one of the lower 8 indicators (lower half of bin), alert is configured as a low level alert. The output relay will trigger when the indicated bin level is at or below this point.

7. If alert point is set below or above the displayable indicators, the bin level display will turn off and the alert will be disabled for the selected bin.

8. Unit returns to Auto Sequence mode after this procedure and will start auto sequencing after 20 seconds of no activity (no key strokes).

BINTRAC

System Settings

The setup mode is used to configure the one-time system setup settings for each bin.
If there is no activity for 20 seconds while in SETUP mode, the system will exit SETUP mode and return to auto sequence mode.

Accessing the Setup mode

This menu can be accessed with two methods:

1. This method requires you to power the device down and wait at least 3 seconds before re-applying power to the system. When the device is powered up it will automatically enter SETUP mode and display the Ver.

2. This method requires you to hold the BIN button down for approximately 10 seconds, at which time SETUP mode will be displayed.

Segmented display:
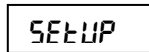
| SEtUP |

Navigating Setup mode

To navigate through the options in Setup mode, you can use the UPPER △ and

LOWER ▽ keys to cycle through the options/parameters. See Figure 1 for the SETUP menu flow chart.

Selecting an Option in Setup mode

To select an option/parameter to edit in SETUP mode, you must navigate to the option

you wish to edit, using the UPPER △ and LOWER ▽ keys, and then by pressing the BIN key when you reach the desired option.

SETUP
Bins
Rated
Capacity
Increment
Full
Zero
Station ID
Ver
SS.Ver
End
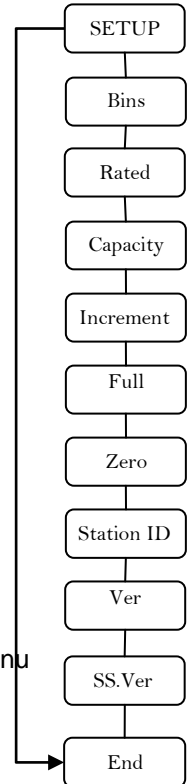
Options in Setup Mode

Setup (Version 3.0 and higher)
The Bin LEDs indicate configuration options as being enabled (solid on) or disabled (flashing).
Bin A – Configures BinTrac Monitor as a Remote Display.
   A Remote Display is hardwared to a BinTrac Monitor for remotely viewing weight data.
Bin B – Enable ASCII Serial Communications Command Set. (See Below)
   BinTrac Monitor or BinTrac Remote Display will transmit weight data based on received
   commands. Enable this feature when interfacing unit to a PC or serial type device.
Bin C – Enable Weight Broadcast.
   ASCII weight data will be serially broadcast approximately once ever second.
Bin D – Enable communications to peripheral devices.
   Must be enabled when BinTrac Monitor is connected to: 1) BinTrac Remote Display,
   and 2) HouseLink PW.

1. Press the BIN key to select the desired configuration option.

2. Use the UPPER △ or LOWER ▽ keys to enable or disable options.

Segmented display:

> `SEtUP`
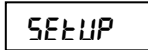
Serial Data Command Set

Poll Command	Description and Data Record Format (fixed length)
P	Current weight of first enabled bin +/-wwwwwcrlf
PP	Current weight of all four bins +/-wwwww,+/-wwwww,+/-wwwww,+/-wwwwwcrlf
SnnP	Current weight of first enabled bin with matching BinTrac Station ID +/-wwwwwcrlf
SnnPP crlf	Current weight of all four bins with matching BinTrac Station ID +/-wwwww,+/-wwwww,+/-wwwww,+/-wwwwwcrlf

Note: All commands must be terminated by CR. Latency between characters within a multiple
character command (including CR), cannot exceed 200msec.
w – bin weight
n – Station ID number
CR – Carriage Return (Hx0D).
LF – Line Feed (Hx0A).

Bins

Enables/disables bin channels. When you get to the Bins option, all of the LEDs will light up. If an LED is blinking, this means that the associated bin is NOT being monitored. If an LED is steady on, then the associated bin is being monitored. ** This option can also be configured in the Operation Settings.

1. Press the BIN key to select the desired Bin.

2. Use the UPPER △ or LOWER ▽ keys to enable or disable bins.

Segmented display:

b InS

Rated

The average rated output, in millivolt/volt of the load cells. DO NOT CHANGE unless necessary. Every standard load cell has a rated output, specified in mV/V. If using load cells other than the HerdStar load cells, adjust this value appropriately.

1. Press the BIN key to select the desired Bin.

2. Use the UPPER △ key to increase the rated output by 0.001.

3. Use the LOWER ▽ key to decrease the rated output by 0.001.

Segmented display:

rAtEd

Capacity

Sets the total capacity of each bin. The total capacity is the sum of all the load cells. ** Total capacity can be calculated by multiplying the capacity of individual load cells at 3.0mV/V by the number of legs being monitored on the bin. ** When setting up for kilograms, convert the total capacity to kilograms.

1. Press the BIN key to select the desired Bin.

2. Use the UPPER △ key to increase the value by 1 lb.

3. Use the LOWER ▽ key to decrease the value by 1 lb.

Segmented Display:

| cAP |
|---|

Increment Value

Sets the increment that the bin weight will display at. The reading from a bin is rounded to the nearest multiple of the increment, using standard rounding rules. The possible values are: 1, 2, 5, 10, 20, 50, 100, 200, 500, 1., 2.,5.,10.,20.,50.. See figure 2.

 ** Example: If an increment of 10 is selected and the net value of a bin's weight is 18,582 lbs, the segmented display will read 18580.

Note: When the increment number is followed by a **"."** the displayed weight value is then scaled by 10. (120462 is displayed as 12046.) This is required when the displayed weight will exceed five digits.

1.   Press the BIN key to select the desired bin.

2.   Use the UPPER △ key to increase the value to the nearest 10 lbs.

3.   Use the LOWER ▽ key to decrease the value to the nearest 10 lbs.

Segmented display:

| Inc |
|---|

```
500.
200.
100.
50.
.....
10.
5.
2.
1.
```
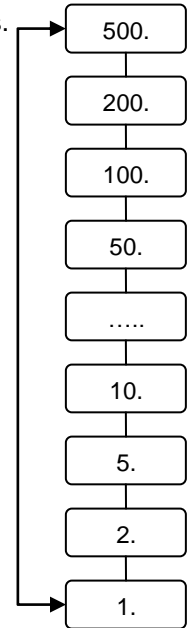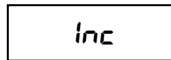
Full Value

Sets the weight of a full bin. This is for calibration of the LED bar graph level. The value says at what net weight the bar graph will display completely full (all 16 LEDs lit).

FIGURE 2

1.   Press the BIN key to select the desired Bin.

2.   Use the UPPER △ key to increase the value by 1 lb.

3.   Use the LOWER ▽ key to decrease the value by 1 lb.

Segmented display:

FULL
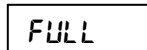
Zero Value

Sets the weight of the empty bin. This value can also be set in the Operation Settings. This is used to compensate for the empty weight of the bin to give an accurate value for the net weight of the material inside the bin. ** Example: A bin weighs 1,200 lbs empty. This is then set to the zero value: the BinTrac Pro then calculates the material weight as the total weight less the zero weight value.

1.   Press the BIN key to select the desired Bin.

2.   Use the UPPER △ key to increase the value by 1.

3.   Use the LOWER ▽ key to decrease the value by 1.
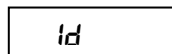
Segmented display:

2Ero

9
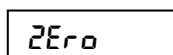
Station ID Value

Sets the Station ID of the device. For devices interfacing with a Site Console, the Station ID must be se within 100 – 131. When interfacing the device to a Communication Hub (CH100), set this value between 1and 99. Each BinTrac device **must** have a unique Station ID.

1. Press the BIN key to select the desired Bin.

2. Use the UPPER △ key to increase the value by 1.

3. Use the LOWER ▽ key to decrease the value by 1.
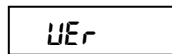
Segmented display:

Id

Software Version (Version 3.0 and higher)

Displays the BinTrac Pro programmed software version number. This number may be required if technical help is needed.

1. Press the BIN key to see the software version number.

Segmented display:

UEr

Smart Summing Box Software Version (Version 3.0 and higher)

Displays each of the connected Smart Summing Boxes programmed software version number. This number may be required if technical help is needed.

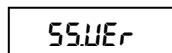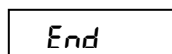1. Press the BIN key to see the software version for each enabled bin.

Segmented display:

SS.UEr

End

Allows the user to exit SETUP mode.

1. Press the BIN button to exit SETUP mode.

Segmented display:

End

10

Operation

Select Bin for Display

Press the BIN key to cycle through the enabled bins. The bin weight and level for the selected bin will be displayed for twenty seconds. After this delay, BinTrac will return to the auto sequence mode described below.

Auto Sequence Mode

Twenty seconds after last key stroke unit begins auto sequence mode, starting from the last displayed bin. Bin level is displayed for the identified bin (A-D).
BinTrac auto sequences to next enabled bin every 5 seconds, displaying the weight and associated level.

Display Fill Events

This procedure allows you to view the last four recorded fill events for each enabled bin.

1. Press the BIN key to select the desired bin.

2. Press the UPPER △ key until "*F ILL*" is displayed.

3. Press Bin to view the last recorded fill event.

4. Press LOWER ▽ key to view other prior recorded fill events.

5. Press Bin to return to Auto Sequence mode or unit will start auto sequencing after 20 seconds of no activity (no key strokes).

Display 24 Hour Usage

This procedure allows you to view the last four 24 hour usage amounts.

1. Press the UPPER △ key twice until "*USAGE*" is displayed.

2. Press Bin to view the last recorded 24 hour usage amount.

3. Press LOWER ▽ key to view other prior recorded usage amounts.

4. Press Bin to return to Auto Sequence mode or unit will start auto sequencing after 20 seconds of no activity (no key strokes).

11

Service

Cleaning

Do not clean the BinTrac modules with a pressure washer. Use a washcloth soaked in warm water containing a mild detergent and disinfectant.

Servicing and Repair

Your BinTrac module contains NO USER SERVICEABLE PARTS. If the product stops working for any reason, it must be returned for repair.

Trouble Shooting

There are a few types of errors that can be encountered during operation of the BinTrac Pro. The following should give you some insight into the cause of the error should one occur. Errors displayed are specific to the selected bin.

> `Error`

Error If this is displayed on the screen, the BinTrac Pro is unable to display the current value or the value is outside the displayable range. Verify programmed settings are correct or check for faulty loadcell.

> `nob In`

no.bin This means that the Smart Summing Box for the selected bin is not communicating. Check for broken wires or loose connections, or Smart Summing Box is not correctly configured, or faulty loadcell. Inspect Smart Summing Box internal diagnostic light; 1)flashing regular – normal working condition, 2)off – no power indication, 3)flashing irregular – unable to communicate.

> `oLORd`

oLOAd This means that the weight in the bin has exceeded the programmed system capacity by 150% and the system is in an over-load state. Remove the weight from the system and check the condition of each load cell.

> `nocon`

no.con This means that the Remote Display has lost communications with the host BinTrac Monitor. Check for broken wires or loose connections and verify unit was intended for use as a Remote Display and not accidentally misprogrammed.