

BiNTRAC[®]

Bin Weighing System Operation Manual

Patented
U.S. Patent No. 7,980,129 and Patents Pending



Table of Contents

| | |
|---|----|
| Overview | 3 |
| Components | 3 |
| BinTrac Indicator | 3 |
| Load Cell Bracket..... | 3 |
| Smart Summing Box | 3 |
| BinTrac Power Supply | 3 |
| Features | 3 |
| Auto Sequence Mode | 3 |
| Bin Level Alert..... | 3 |
| Fill Events..... | 3 |
| 24 Hour Usage | 3 |
| Remote Display..... | 3 |
| BinTrac.com..... | 3 |
| System Setup | 4 |
| Operation Settings..... | 4 |
| Selecting Bins | 4 |
| Calibrate Bin Empty (Zero) | 4 |
| Program Alert Level | 5 |
| System Settings | 6 |
| Accessing the Setup mode | 6 |
| Navigating Setup mode..... | 6 |
| Figure 1 | 6 |
| Selecting an Option in Setup mode | 6 |
| Setup (Version 3.0 and higher)..... | 7 |
| Serial Data Command Set | 7 |
| Setup Mode Settings..... | 8 |
| INTERNAL MODE | 11 |
| Accessing the Internal mode..... | 11 |
| Navigating Internal mode | 11 |
| Selecting an Option in Internal mode..... | 11 |
| Internal | 11 |
| Totalizing Multiple Bins..... | 11 |
| Internal Mode Settings | 12 |
| Select Bin for Display | 14 |
| Auto Sequence Mode..... | 14 |
| Display Fill Events | 14 |
| Display 24 Hour Usage | 14 |
| Totalizing Multiple Bins..... | 14 |
| Service..... | 15 |
| Cleaning | 15 |
| Servicing and Repair | 15 |
| Trouble Shooting..... | 15 |
| Herdstar BinTrac® Warranty | 16 |

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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

One 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 Indicator records the net weight increase of the last four fill events for each enabled bin.

24 Hour Usage

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

BinTrac.com

Multiple BinTrac Indicators 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 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 Indicator 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 eight 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, bin "A" 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 the LOWER  and then the UPPER  key and hold 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).

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. The first 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 version.
2. The second method requires you to hold the BIN button down for approximately 7-10 seconds, at which time SETUP mode will be displayed.

Segmented display:



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.

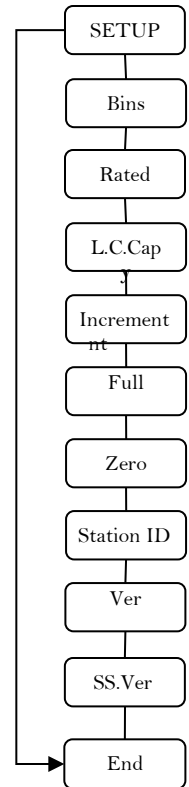




Figure 1

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 (Version 3.0 and higher)

The Bin LEDs indicate configuration options as being enabled (solid on) or disabled (flashing).

Bin A – Configures BinTrac Indicator as a Remote Display.

A Remote Display is hardwired to a BinTrac Indicator for remotely viewing weight data.

Bin B – Enable ASCII Serial Communications Command Set. (See Below)



BinTrac Indicator 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 Indicator 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:



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 *Also works with F, FF and U, UU commands |
| SnnPP crLf | Current weight of all four bins with matching BinTrac Station ID +/-wwwww,+/-wwwww,+/-wwwww,+/-wwwwwcrLf *Also works with F, FF and U, UU commands |
| Fcr | Single Bin Fill: yy,mm,dd,hh,mm,+/-wwwwwcrLf |
| Ucr | Single Bin Usage: yy,mm,dd,hh,mm,+/-wwwwwcrLf |
| FFcr | Multiple Bin Fill: yy,mm,dd,hh,mm,+/-wwwwwcrLf yy,mm,dd,hh,mm,+/-wwwwwcrLf yy,mm,dd,hh,mm,+/-wwwwwcrLf yy,mm,dd,hh,mm,+/-wwwwwcrLf |
| UUcr | Multiple Bin Usage: yy,mm,dd,hh,mm,+/-wwwwwcrLf yy,mm,dd,hh,mm,+/-wwwwwcrLf yy,mm,dd,hh,mm,+/-wwwwwcrLf yy,mm,dd,hh,mm,+/-wwwwwcrLf |

Note: All commands must be terminated by CR. Latency between characters within a multiple character command (including CR), cannot exceed 250msec.

w – bin weight

n – Station ID number

yy,mm,dd,hh,mm – Year, Month, Day, Hour, Minutes

CR – Carriage Return (Hx0D).



LF – Line Feed (Hx0A).

*****The above Serial settings are for Bintrac Indicator software versions 3.08 and earlier. Please refer to the HouseLink HL-10S Serial Interface Manual for any Bintrac Indicator software versions 3.15 or higher.**

Setup Mode Settings

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:

bin5

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 (L.C.Cap)

Sets the total capacity of each bin. The total capacity is the sum of all the load cells rated capacity. **Total capacity can be calculated by multiplying the capacity of individual load cells 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:

L.C.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..

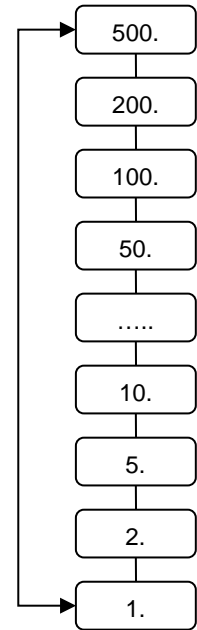
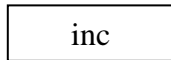
See figure 2.

**** 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:



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:

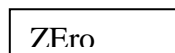


Zero Value

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 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:



Station ID Value

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

INTERNAL MODE

Accessing the Internal mode

Press and hold the BIN button down for approximately 15 seconds, at which time Internal (Intr) mode will be displayed. Any changes made to the internal settings may adversely affect how the Bintrac system operates. **DO NOT** make changes to any items without understanding the affect it may have on the operation of Bintrac.

Segmented display:

intr

Navigating Internal mode

To navigate through the menus while in the Internal mode, you can use the UPPER arrow and LOWER arrow keys to cycle through the options/parameters. See Figure 1 for the Internal menu flow chart.

Selecting an Option in Internal mode

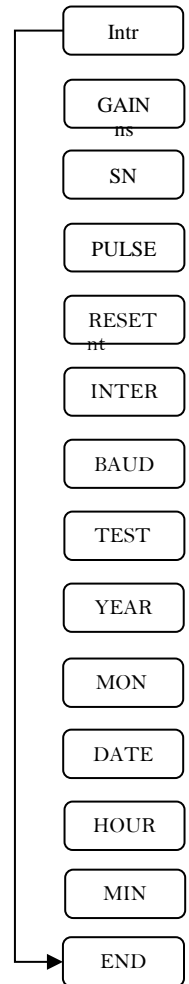
To select an option/parameter to edit in Internal mode, you must navigate to the option you wish to edit, using the UPPER arrow and LOWER arrow keys, and then by pressing the BIN key when you reach the desired option.

Internal

Intr

When 'Intr' is displayed on the indicator, the following settings can be configured. Set the Bin LEDS as Flashing (Disabled) or Solid On (Enabled)

- ❖ BIN A - Change Single bin weight transmit to multiple bin weight transmit.
- ❖ BIN B - Configure transmit data to expanded weight data. (See table below)
- ❖ BIN C - Totalize Multiple Summing Boxes (V3.03+)
- ❖ BIN D - Change transmitted weight values from fixed 5 digits to fixed 6 digits.



Totalizing Multiple Bins

When using more than one Smart Summing box for a single bin, you must totalize the summing boxes so they can be displayed on a single indicator. When this feature is enabled, the total weight will be displayed under BIN A.

1. Enter Internal Mode.
2. With INTR displayed on the screen, enable BIN C.
3. Exit Internal Mode

Summing Box Setup:

To totalize multiple summing boxes, set dipswitches in summing boxes as B, C, and/or D. Do NOT set any summing boxes as Bin A. When totalizing is enabled, the total will be displayed as Bin A.

BinTrac Indicator Setup:

Enable Bins A plus B and C if two summing boxes required, or Bins A plus B, C and D if three summing boxes required. Program parameters "rated" and "CAP" for each summing box as if it was a single bin. Be sure to program summing boxes correctly matching the number of load cells on each summing box. Program Bin A "CAP" as the total capacity of all connected summing boxes. Program Bin A "Full" as the total amount of feed that can be stored in the bin.

Internal Mode Settings

Gain

GAIN

GAIN is a calculated field that should NOT be changed by the user.

Serial Number



SN

The **serial number** is preset during production and should NOT be changed by the user.

Pulse

PULSE

The PULSE is used to set the number of weight units per pulse when used in conjunction with a HouseLink Digital Interface (HL-10D). Set to how many pounds or kilograms of weight loss of the combined enabled bins for every pulse output. When set to "0" pulse output is disabled.

1. Press the BIN key to display and allow editing of programmed value. Select the desired bin.
2. Use the UPPER  key to increase the pulse weight by 1.
3. Use the LOWER  key to decrease the pulse weight by 1.

Reset

RESET

CAUTION: Resetting the Bintrac Indicator will default all weight and user configured settings. Make sure to write down the settings prior to resetting if possible.

To reset the Bintrac Indicator:

1. Enter internal menu.
2. Arrow down to reset.
3. Press BIN key and all bins will show solid.
4. Press and hold the upper arrow and lower arrow until the word done is displayed on the screen.

Inter

INTER

INTER is a preset field that should NOT be changed by the user.

Baud

BAUD

BAUD is used to configure the serial communications Baud Rate. The options are 1200, 4800, 9600, 19200, 38400, 57600. The default is set to 57600.

Test

TEST

Selecting the TEST mode will put the indicator through a number LED tests.

Year

YEAR

Year is set at the time of production and should NOT be changed.

Month

MON

Month is set at the time of production and should NOT be changed.

Date

DATE

Date is set at the time of production and should NOT be changed.

Hour

HOUR

Hour is set at the time of production and should NOT be changed.

Minute

MIN

Minute is set at the time of production and should NOT be changed.

End

END

Selecting **END** will put the indicator back in SETUP mode..

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 "Fill" 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).

Totalizing Multiple Bins

When using more than one Smart Summing box for a single bin, you must totalize the summing boxes so they can be displayed on a single indicator. When this feature is enabled, the total weight will be displayed under BIN A.

4. Enter Internal Mode.
5. With INTR displayed on the screen, enable BIN C.
6. Exit Internal Mode

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. The following should give you some insight into the cause of the error should one occur. Errors displayed are specific to the selected bin.

Errorr

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

nobin

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.

oL0Ad

oL0Ad- 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.

No.con

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

No.Pul

no.PuL- This error message indicates that the BinTrac Indicator has been programmed for a PULSE output and is unable to communicate with the HouseLink WP. If not connected to a HouseLink WP, set Pulse weight to "0".

Herdstar BinTrac[®] Warranty

Herdstar LLC. (“**Herdstar**”) warrants to original purchaser (“**Buyer**”) that goods manufactured solely by Herdstar LLC. (“**Products**”) will be free from defects in material or workmanship under normal and intended use and service for a period of one year from delivery date of the Products. Used and/or refurbished parts sold shall carry a 90 day warranty on material and workmanship. All warranty claims must be submitted within ten (10) days of discovery of defects within the warranty period, or shall be deemed waived. Furthermore, Herdstar LLC warrants the load cell (“Load cell” is defined as the s-shaped component and any cabling and connectors) against lightning damage for 12 months or the term of any extended warranty.

In the event of a defect in any Products constituting a breach of the warranty provided herein, Herdstar LLC. will at its option either (i) repair or replace such Product free of charge, or (ii) in lieu of repair or replacement, refund to Buyer the original purchase price less the reasonable value of Buyer’s use of the Products. Herdstar LLC. shall furnish to Buyer instructions for the disposition of the defective goods. Herdstar LLC shall have the option of requiring the return of the defective goods, transportation prepaid, and proof that the goods were not used, installed or altered or subject to misuse or abuse to establish the claim. No goods shall be returned to Herdstar LLC. without its prior consent. The acceptance of any goods returned to Herdstar LLC shall not be deemed an admission that the goods are defective or in breach of any warranty, and if Herdstar LLC determines that the goods are not defective they may be returned to Buyer at Buyer’s expense. This warranty sets forth Buyer’s sole and exclusive remedies for any defect in the goods. The rights and obligation under this warranty may not be assigned or delegated to a third party by Buyer without the prior written permission of Herdstar LLC. Neither Buyer nor any other person may modify or expand the warranty provided herein, waive any of the limitations, or make any different or additional warranties with respect to the Products. Any statements to the contrary are hereby rendered null and void unless expressly agreed to in writing by an authorized officer of Herdstar LLC.

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