



***HouseLink HL-10E***

***Installation and Operation Manual  
Modbus TCP***



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## Installation Overview

This guide covers the mounting and wiring of the HouseLink HL-10E interface. HouseLink interfaces should be placed indoors.



This symbol means the text has extra importance since it is describing the importance of a feature or explaining a step to which you should pay close attention to avoid problems, or to which safety is a concern.

## Components

A BinTrac system consists of a number of basic components:

### BinTrac Indicator

This is the main unit of the BinTrac system. The BinTrac Indicator communicates with the Smart Summing Boxes to register the weight of feed in the bins and peripheral devices including HouseLink HL-10E. The feed level is computed and displayed on the LED bar graph. One BinTrac Indicator can display up to four feed bins.

### Load Cell Bracket

Four or more load cell brackets allow the BinTrac Indicator to accurately measure the feed level in your bins. The summing box averages the signals from all brackets to minimize errors that could result from voids (holes) in the feed.

### 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.

### HouseLink Model HL-10E

The HouseLink 10E (HL-10E) provides an interface to the BinTrac system via Ethernet utilizing MODBUS TCP.

## Installation

### Mounting HouseLink HL-10E

**Step 1:** The HouseLink HL-10E should be mounted indoors and away from moisture and debris. It should mount in or near the peripheral device it is connecting to.

### Wiring the HouseLink HL-10E Interface

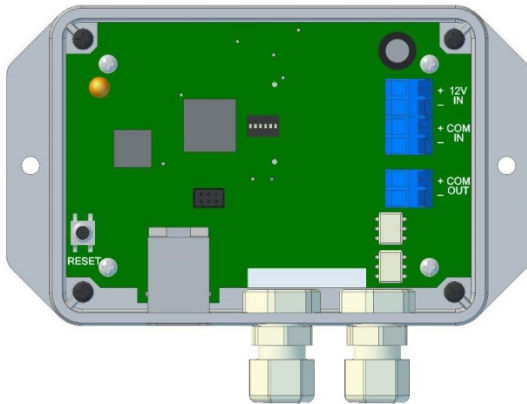


FIGURE 1

HL-10E	BinTrac Indicator (COMM Port)
+COM (IN)	+12 SIG
-COM (IN)	-12 SIG
HL-10E	Power Supply
+12V (IN)	+12V (black/white stripe)
-12V (IN)	-12V (black)
HL-10E Interface	House Control/PLC
Ethernet Port	Ethernet Port

**Step 2:** Connect the +12V (IN) and -12V (IN) on the HL-10E to the provided power supply.

**Step 3:** The +COM (IN) and -COM (IN) on the HL-10E connects to the + SIG and - SIG on the COMM Port of the Bintrac Indicator.

**Step 4:** The Ethernet port will connect to the PLC or House Control using a standard CAT5 Ethernet cable.

**RESET BUTTON:** Pressing and releasing the RESET will put the HL-10E in discovery mode where the device will search for connected BinTrac devices. The LED will flash quickly and then return to a slow flash once discovery is complete.

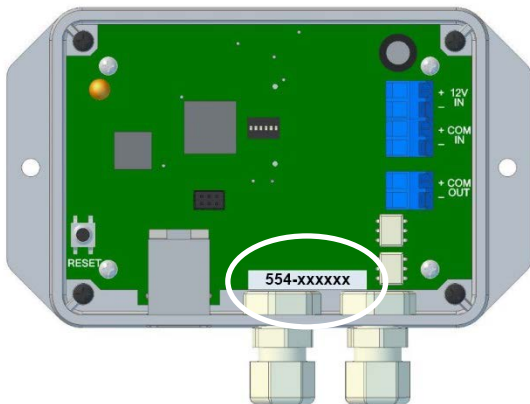


A factory reset can be completed by holding the RESET button for 30 seconds. **DO NOT** attempt a factory reset unless all other troubleshooting has been attempted.

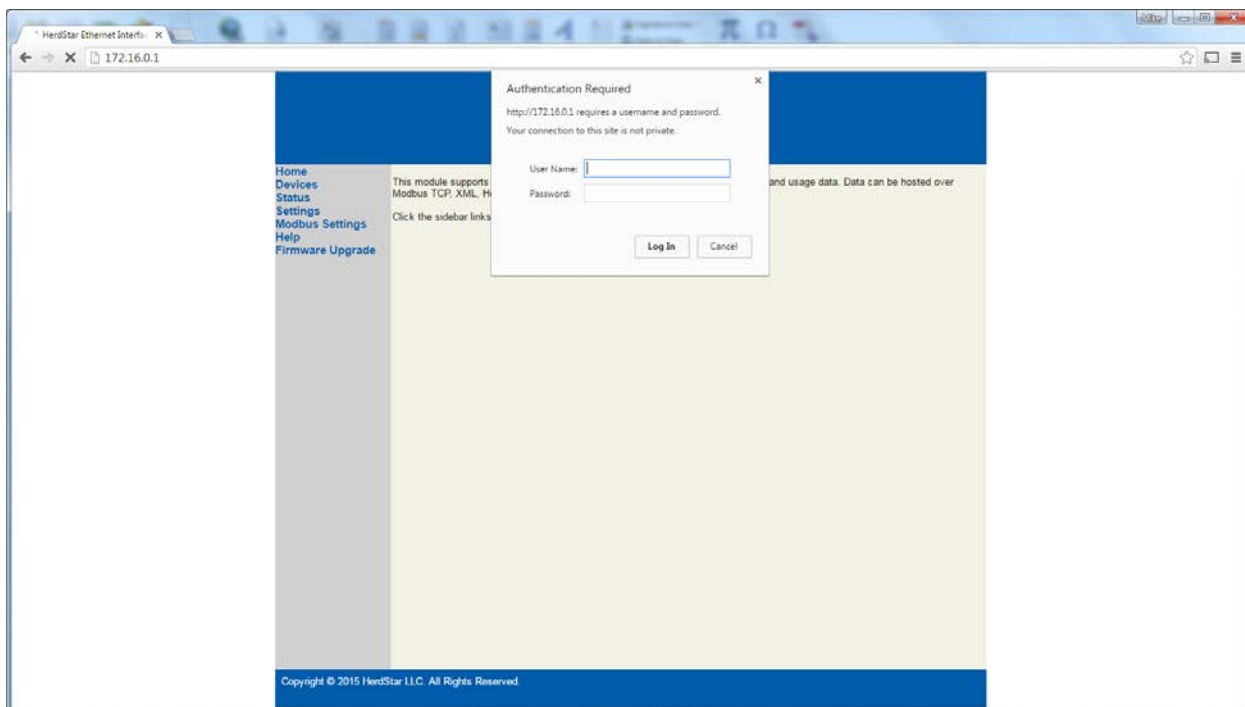
## SETUP & CONFIGURATION

### Initial Setup

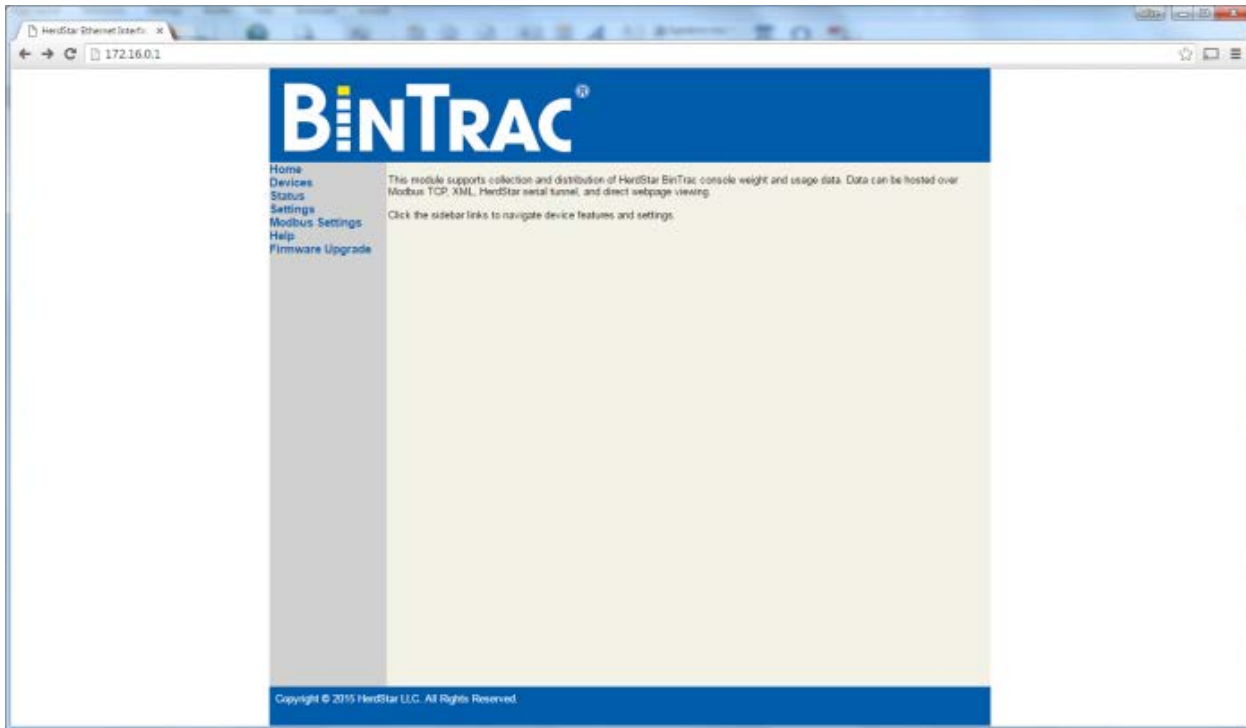
1. Connect the HL-10E to the Local Area Network(LAN).
2. Open a web browser on any device connected to the same LAN as the HL-10E.
3. Type in **http://HL10Exxxxxx/** where “xxxxxx” equals the serial number on the HL-10E. (Circled below)



4. When the login screen pops up, leave the username blank and enter “AAAAA” as the password.

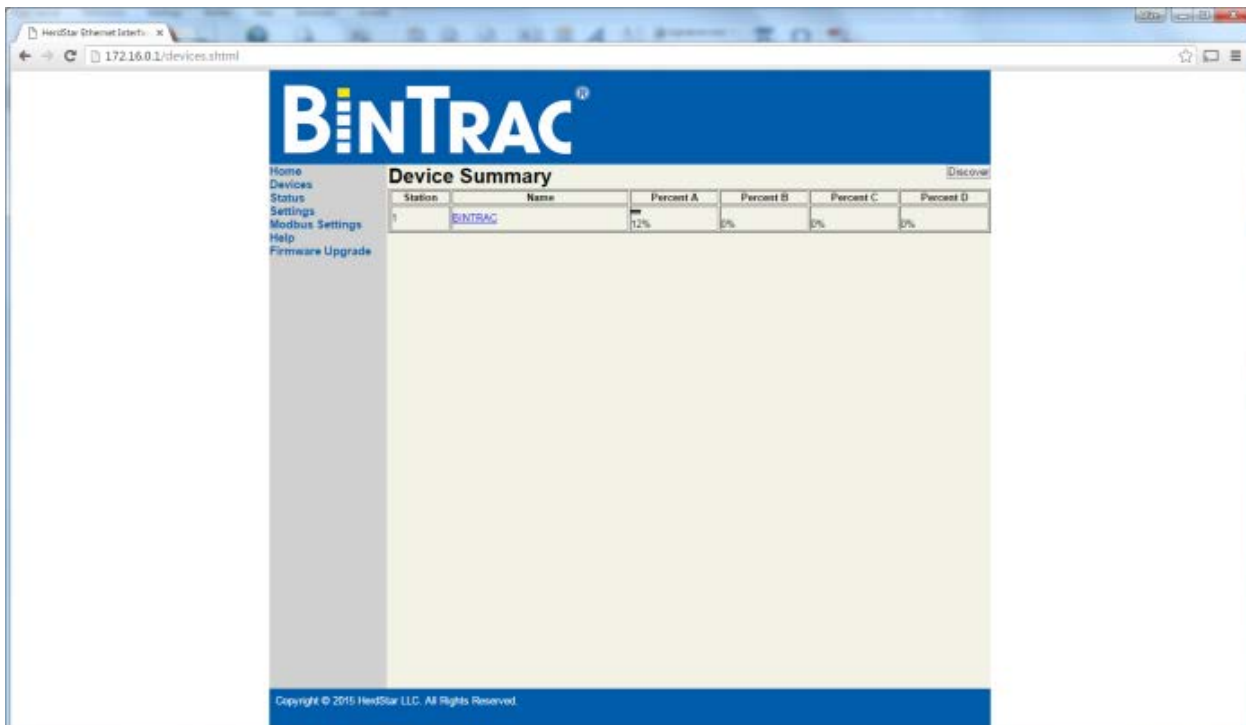


## Home Screen

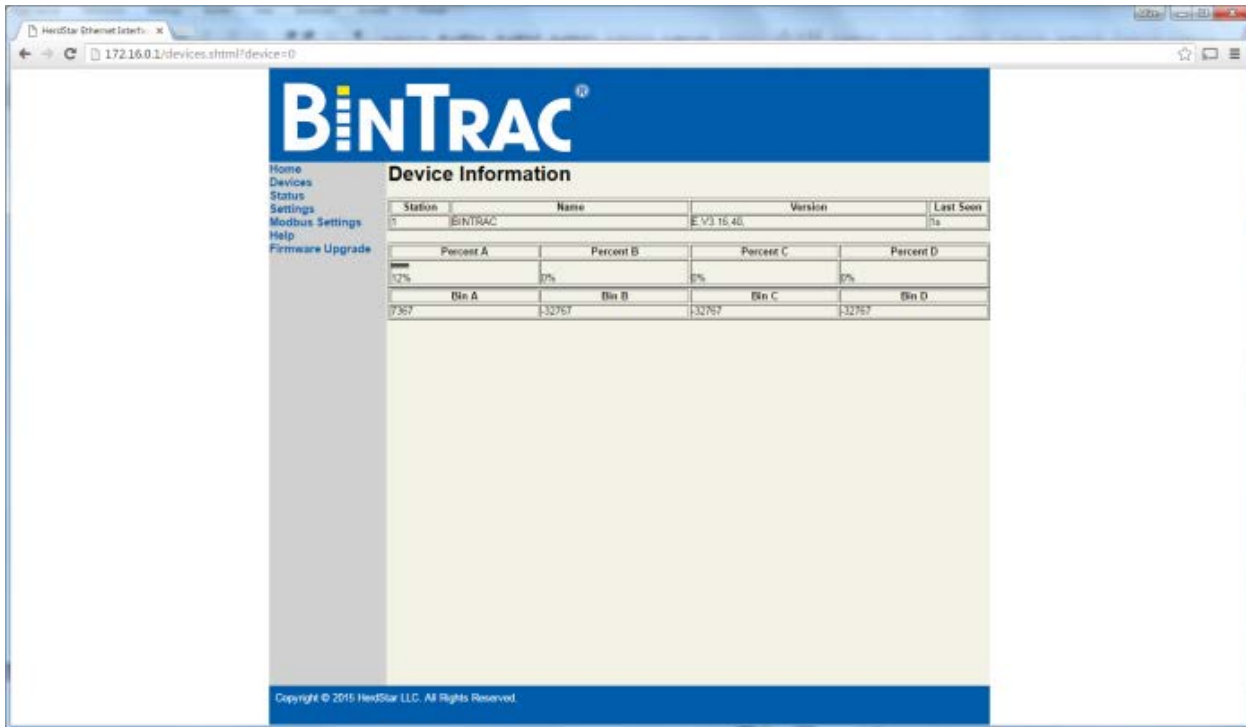


## Devices Screen

Identifies connected devices and current weights of each bin

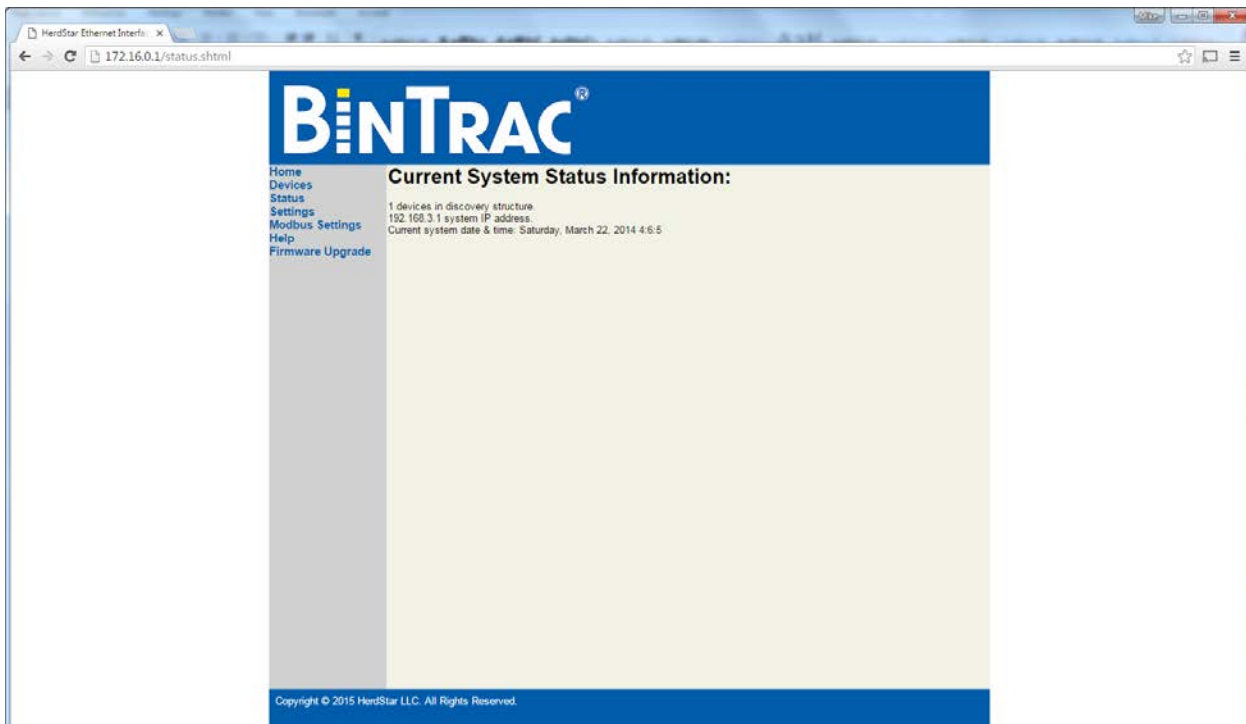


- Clicking on the individual devices brings up details about each such as weights, percentages and the SW version in the Bintrac Indicator.



## Status Screen

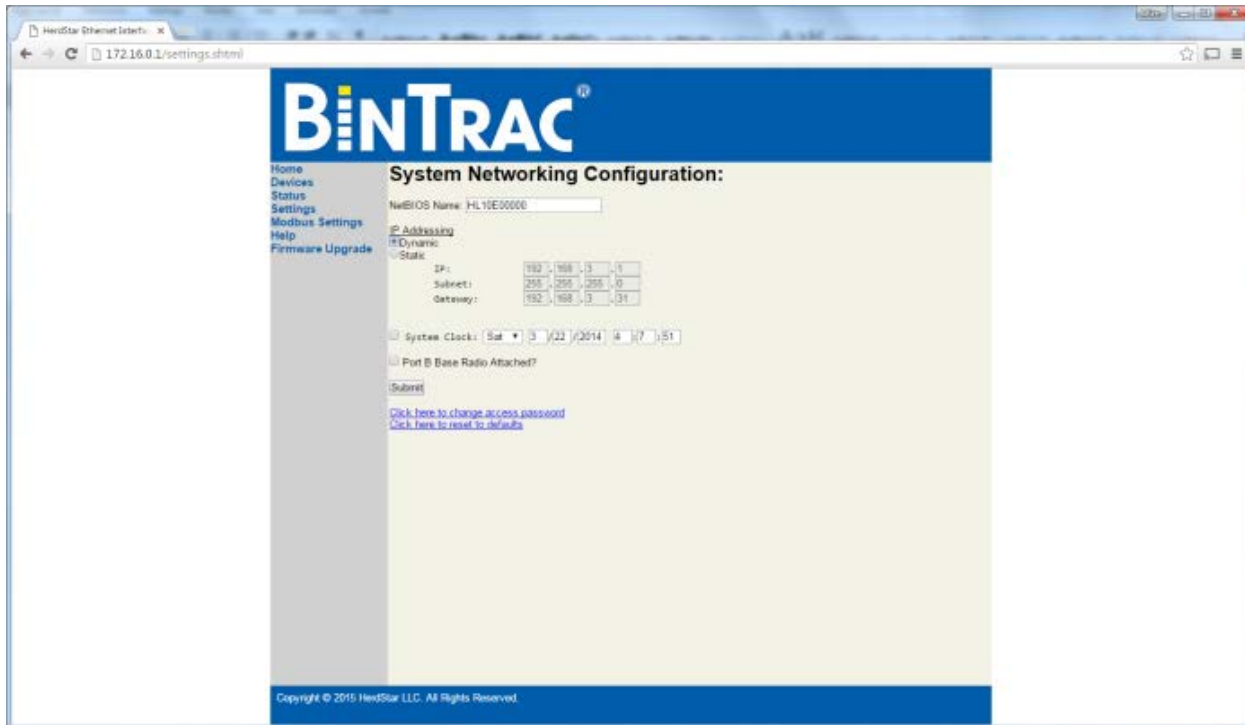
Identifies the number of Bintrac devices and the IP address of the HL-10E.



## Settings screen

The settings screen displays the current NetBIOS name, dynamic or static IP addressing and the system clock. You may change the IP addressing by selecting Static and making the appropriate changes.

- NetBIOS Name:
  - MAX 16 characters
  - UPPERCASE
  - Alpha-numeric
- The STATIC IP address requires the IP address as well as the Subnet and Gateway IP. Changing these can make the device not work so be sure of the changes before pressing submit.
- The system clock can be updated for the current date and time.



6. The Help Screen and FAQ can answer some of the more common issues. If you are continuing to have problems, please call 1-877-BINTRAC for technical assistance.



## MODBUS PACKET DATA FORMAT

The Modbus module responds to an input register point type (4), at address 1000 with a length of 8bytes. The module device ID will match to the BinTrac Indicator device ID as configured in the setup menu of the BinTrac indicator. A discovery must be done before any units will respond.

Below are sample Modbus request and response packets:

### SAMPLE MODBUS REQUEST:

`[4c][02][00][00][00][06][0b][04][03][e7][00][08]`

HEX	DESCRIPTION	DECIMAL
4c02	TRANSACTION ID	19458
0000	PROTOCOL ID	0
0006	# OF BYTES	6
0b	DEVICE ID	11
04	INPUT REG	4
03e7	ADDRESS	1000
00008	LENGTH	8

TABLE 2

### SAMPLE MODBUS RESPONSE:

`[4c][02][00][00][00][13][0b][04][10][ff][ff][80][01][ff][ff][80][01][00][00][6b][6e][ff][ff][80][01]`

HEX	DESCRIPTION	DECIMAL
4c02	TRANSACTION ID	19458
0000	PROTOCOL ID	0
0013	# OF BYTES	19
0b	DEVICE ID	11
04	INPUT REG	4
10	SIZE	16
fff8001	BIN A	-32767
fff8001	BIN B	-32767
00006b6e	BIN C	27502
fff8001	BIN D	-32767

TABLE 3

### Weight Data Conditions:

Bintrac Display	Weight	Error Description
no.bin	-32000	Smart Summing Box is not communicating with the BinTrac Monitor
N/A	-32767	Selected Bin is disabled and not displayed.
Error	99999 or -9999	Calculated weight exceeds display limit of >99999 or < -9999
o.LoAd	>150% of Capacity	Weight exceeds 150% of programmed capacity.
no.con	-32600	Remote Display lost communications connection with Host BinTrac Monitor

TABLE 4

## BinTrac Error Messages

### no.bin

This error message indicates that the BinTrac Indicator is not communicating with the Smart Summing Box of the indicated bin.

- *Disable bins that do not have an associated Smart Summing Box and bin.*
- *Verify wiring between Smart Summing Box and BinTrac Indicator is correct and has not been damaged.*
- *Verify Smart Summing Box has been programmed as the correct bin.*
  - *Verify Smart Summing Box dip switch settings are set for their selected bin (A, B, C or D).*
  - *Verify that two Smart Summing Boxes are not programmed as the same bin as this will cause no.bin error for both.*
- *Inspect Smart Summing Box for flashing light.*
  - *A steady flashing light indicates the Smart Summing Box has power and is operating correctly.*
  - *An irregular flashing light indicates the Smart Summing Box has power but is unable to communicate with the BinTrac Indicator.*
    - *Confirm all wires are tight and secure.*
    - *Confirm dipswitches are set correctly.*
    - *Communications port on Summing Box or BinTrac Indicator may have been damaged.*
      - *If BinTrac Indicator is displaying no.bin for other connected bins, replace indicator.*
      - *Replace summing box*
  - *No Light indicates the Smart Summing Box does not have adequate power or has been damaged.*
    - *Confirm all wires are tight and secure.*
    - *Verify 12VDC is available to the Smart Summing Box.*
    - *Locate a shorted loadcell that could be shorting power within Smart Summing Box.*
- *If more than a single bin is displaying no.bin, isolate the problem Smart Summing Box by removing all connects except to a single Smart Summing Box.*

### Error

This error message indicates the weight reading exceeds the five digit display. This can be caused by invalid programmed settings, a loadcell not correctly plugged into a connector in the Smart Summing Box, a defective loadcell causing a large weight reading, or a defective Smart Summing Box.

- *Confirm all programmed settings are correct*
  - *Verify Zero is valid and in-range. A large incorrect zero can cause this.*
  - *Verify Capacity has been correctly programmed.*
- *Open summing box and inspect loadcell connections.*
  - *Verify connector is properly aligned with its associated header.*
  - *Verify wires are properly seated in each connector.*
- *Confirm Summing Box is clean and dry. Long-term moisture in a Summing Box can cause inaccurate readings.*
- *Check Load cells See “**Loadcell Troubleshooting Procedures**”*

### no.con

This error message indicates that this device has been programmed as a Remote Display device and is unable to communicate with the BinTrac Indicator.

- *Verify that this indicator is intended to be a Remote Display as configured in Setup Configuration. This error message more often appears when a Bin Indicator was accidentally programmed as a Remote Display unit.*
- *Verify wiring is correct between BinTrac Indicator and BinTrac Remote Display.*

## Operational Specifications

<b>Operating Temperature Range:</b>	-40°C to +60°C (-40°F to +140°F)
<b>Humidity:</b>	5% to 95% (non-condensing)
<b>Environmental Air:</b>	No corrosive gasses permitted
<b>Shock and Vibration:</b>	N/A
<b>Enclosure Type:</b>	Unsealed
<b>Agency Approvals:</b>	N/A
<b>Wiring Type:</b>	Screw terminal blocks plus RJ45 jack
<b>Power Requirements:</b>	10.5VDC – 13.5VDC,?? mA (typ @ 12.0VDC) (Current depends on port loading)
<b>Serial FLASH Memory:</b>	16Mb (2Mb x 8)
<b>Real-Time Clock/Calendar:</b>	Maxim Integrated P/N: DS1337
<b>Ethernet Communication Port:</b>	Single 10/100 Base-T with status indicators
<b>COM IN/OUT Serial Communication Interfaces:</b>	HerdStar optically isolated (proprietary)

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