B**i**nT**r**ac®

Communication Hub
Installation and Operation Manual

HerdStar®

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Installation Overview

This section covers the mounting, wiring, and operation of the Communication Hub and attached communication device (Internet, cellular, or serial).

⚠ 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 BT200

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

BinTrac Indicator BT260

The BT260 is an alternate main unit of the BinTrac system. The BT260 features a 6-digit display with an optional 20 pin expansion header for an alert relay interface.

Load Cell Bracket Assemby

Four or more load cell brackets allow the BinTrac Indicator to accurately measure the feed 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 feed.

Smart Summing Box

One Smart Summing Box per bin communicates the current weight of the bin 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.

Remote Radio

A Remote Radio connects to a BinTrac Indicator. It provides wireless communications for a local HerdStar Area Network between the BinTrac Indicator and a Communication Hub.

Communication Hub

A Communication Hub connects the on-site communications service (Internet or cellular) to the local HerdStar Network allowing BinTrac Indicators to be remotely monitored.

BinTrac Remote Display

A BinTrac Remote Display is a standard BinTrac Indicator configured as a Remote Display. A hardwire cable must connect the Remote display to the BinTrac Indicator.

HouseLink™ Interfaces

Analog, Digital, Proportional, Serial, and Ethernet interfaces are available. Refer to the individual installation Manuals when connecting any of the HouseLink interfaces.

Communication Device

A communication device (Internet, cellular, or serial) will allow you to monitor the levels of the bin, as well as fill and usage data, remotely via the BinTrac Vision website or locally on your PC using BinLink software.

BinTrac Indicator Setup

Prior to installation of the Communication Hub and related parts, ensure that each BinTrac indicator is set to its own unique Station ID. This is required to ensure that each Indicator can be separately identified on the BinTrac Network. Follow the below instructions for each BinTrac Indicator you will be connecting to the system.

1. Press and hold the BIN key until $SEtUP$ appears.
2. Release the BIN key and use the UP or DOWN arrow to navigate to id.
3. Press the BIN key once and then use the UP and DOWN arrows to set each Indicator to a unique value.
4. When set, press the BIN key once and then use the UP or DOWN arrows to navigate End.
5. Press the BIN key once to exit setup.

Mounting

Communication Hub

1. Mount the Communication Hub in a convenient location, closest to the majority of the devices you will be interfacing with. *Note: Indoor mounting of the Communication Hub is recommended.*

Base Radio (Optional)

1. If connecting to a BinTrac Indicator(s) via radio, mount Base Radio in a high location with best line of sight to Remote Radio(s). The Base Radio may be mounted indoors or outdoors.

Cellular

Cellular Modem

1. Slide the supplied mounting bracket through the slot on the back of the modem.
2. Mount the cellular modem in a convenient location, closest to the majority of the devices you will be interfacing with. *Note: The cellular modem should be mounted **indoors only**.*

Antenna

1. Mount antenna outdoors at the highest possible location that will still allow you to route the cables into the cellular modem, ideally on the side of the structure that faces the nearest Verizon Wireless cellular tower.

Internet

1. Mount the Lantronix UDS1100 in a convenient location, closest to the majority of the devices you will be interfacing with. *Note: The UDS1100 should be mounted **indoors only**.*

Serial

A serial connection to your local PC requires no mounting. It is simply a cable that connects your PC to the Communication Hub.

Wiring

The Communication Hub provides a central point to connect the site BinTrac System using Internet, cellular or serial connection to your local PC. Multiple BinTrac Indicators can be connected to the Communication Hub, either directly or via a Base Radio. Use the appropriate HerdStar-provided cables to make the connections. Diagrams for Internet, cellular, and serial installations are located in **Appendix A** along with the appropriate part numbers.

BinTrac Indicator

1. Remove the faceplate from the BinTrac Indicator.
2. Locate the correct terminal block on your Indicator (see **Figure 1**).
3. Depending on the model of your BinTrac Indicator, connect the white wire of CAB-000060 to the +SIG and the red wire to -SIG (BT200) or the white wire to the +COM and the red wire to -COM (BT260). Tighten screws.
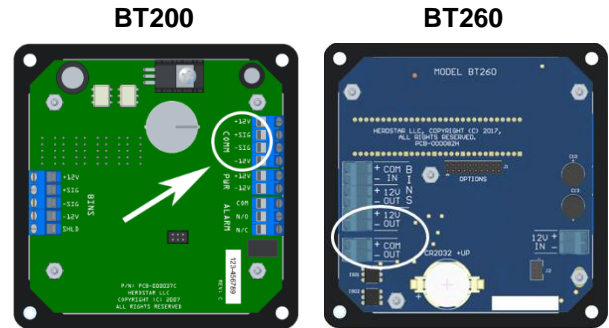4. Replace the faceplate.

BT200   **BT260**

Figure 1

Base Radio (Optional)

1. If connecting to the BinTrac Indicator via radio (as opposed to the hardwired method above), connect one end of the Conxall cable to the Base Radio.

Cellular

1. Slide included heat shrink over both 'A' and 'B' on the antenna, then attach supplied coax extensions. Use a heat gun to apply heat shrink over connectors. Ensure that you clearly mark the other end of the coax extension that you are running into the modem with the corresponding letter.
2. Tie or otherwise secure the coax connectors underneath the bottom of the antenna shroud to protect them from the elements. Create a drip loop so water will be directed away from the connectors.
3. Connect coax extension 'A' to the 'Cellular' port on the cellular modem.
4. Connect coax extension 'B' to the 'Aux' post on the cellular modem.
5. Connect supplied serial cable to the RS-232 port on the cellular modem.
6. Connect one lead of the supplied dual lead power cable to the ⊙─⊂─⊙ port on the cellular modem.
7. Connect dual lead power cable and line cord to power supply.
8. Proceed to **Communication Hub** below.

Internet

1. Connect supplied serial cable to the Serial/RS-232 port on the Lantronix UDS1100.
2. Connect an ethernet cable between the 10/100 port on the Lantronix UDS1100 and your Internet router/hub/switch.
3. Connect the included Lantronix power supply to the 9-30VDC port on the Lantronix UDS1100.
4. Proceed to **Communication Hub** below.

Serial

1. Connect the RS-232 cable to the USB adapter.
2. Connect the USB Type A end to a free USB port on your PC.
3. Proceed to **Communication Hub** below.

Communication Hub

1. Connect the BinTrac Indicator to the CONSOLE/ROUTER port on the Communication Hub
   a. For BinTrac Indicators connected via remote radios, connect the Base Radio to the BASE RADIO port.
2. Connect the cellular modem (for cellular communication), Lantronix UDS1100 (for Internet communication), or serial cable (for local monitoring) to the SERIAL PORT.

3. Connect power to the Communication Hub
    a. For cellular, connect the other lead from the dual lead power supply. Plug line cord into power supply.
    b. For Internet or serial, connect the power supply with included cable. Plug line cord into power supply.
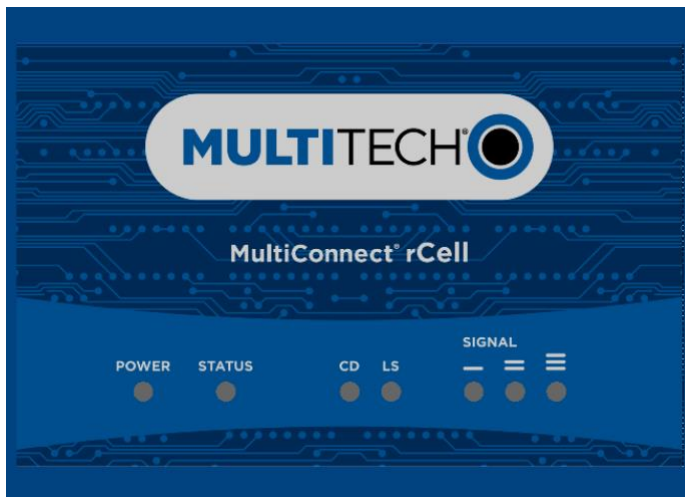
⚠ **Once you have completed mounting and wiring the system, please call HerdStar Technical Support at 877-246-8722 (877-BINTRAC) so that we may verify and test the communications between your system and our BinTrac Vision monitoring software.**
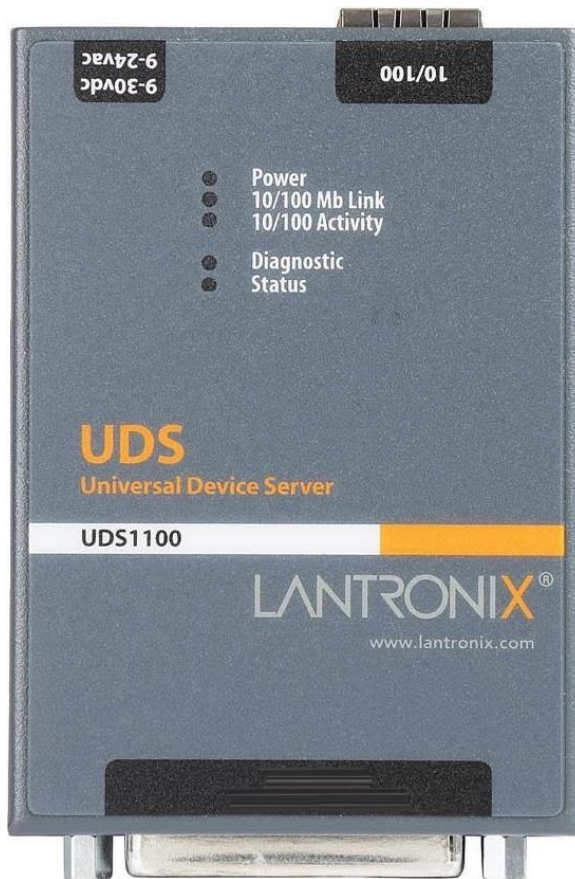
Operation

Operation of the Communication Hub and connected cellular modem, Internet serial device, or serial cable is intended to be "hands off" once the system is connected and should not require any user intervention. Below is information on the indicator lights for the cellular and internet devices which can aid in any potential troubleshooting when necessary.

Cellular Modem

- POWER – Indicates presence of power when lit.
- STATUS
    o The LED is a solid light when the device is booting up or restarting
    o The LED blinks when the device is operating normally
- CD – Carrier Detect. When lit, indicates data connection has been established.
- LS – Link Status
    o Continuously Lit — Not registered
    o Slow Blink— Registered or connected
- SIGNAL – Signal strength for cellular
    o ALL OFF — Unit is off, not registered on network, or has an extremely weak signal
    o 1 Bar "ON" — Very weak signal
    o 1 Bar and 2 Bar "ON" — Weak signal
    o 1 Bar, 2 Bar, and 3 Bar "ON" — Good signal

Internet Serial Device

- POWER Indicates presence of power when lit
- 10/100 Mb Link – Indicates a valid network connection when steady lit
- 10/100 Activity – Indicates network activity when blinking
- Diagnostic – When lit solid or blinking, indicates an error (see below)
- Status – Indicates status
  - o Blinking Green – Serial port connected to network
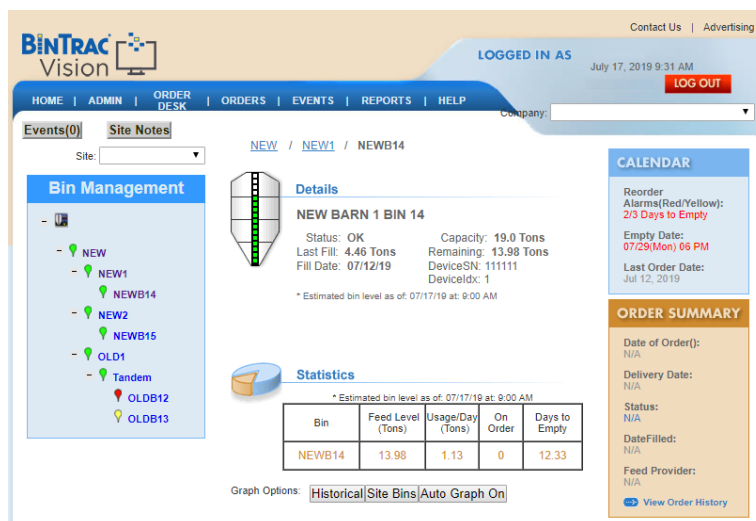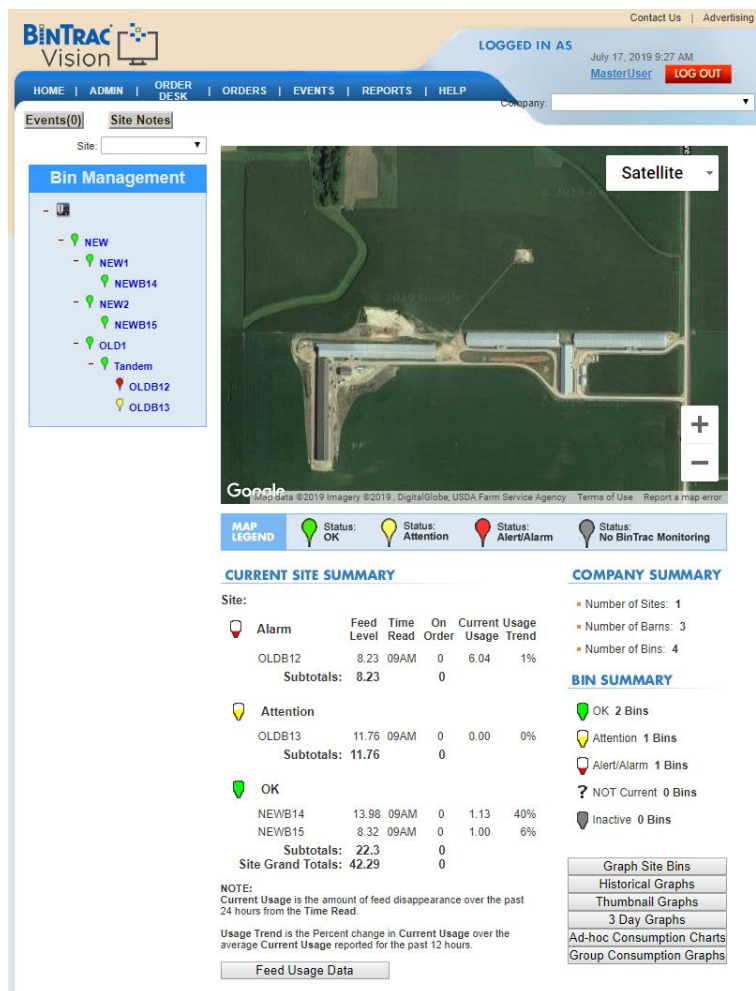 - o Steady green – Serial port not connected to network

Simultaneously lit Diagnostic (red) and Status (green) LEDs means something is wrong. If the Diagnostic LED is lit or blinking, count the number of times the Status LED blinks between its pauses.

- Diagnostic steady red and status blinking green
  - o 3 blinks = Network controller error
  - o 4 blinks = EEPROM checksum error
  - o 5 blinks = Duplicate IP address on network
- Diagnostic blinking red
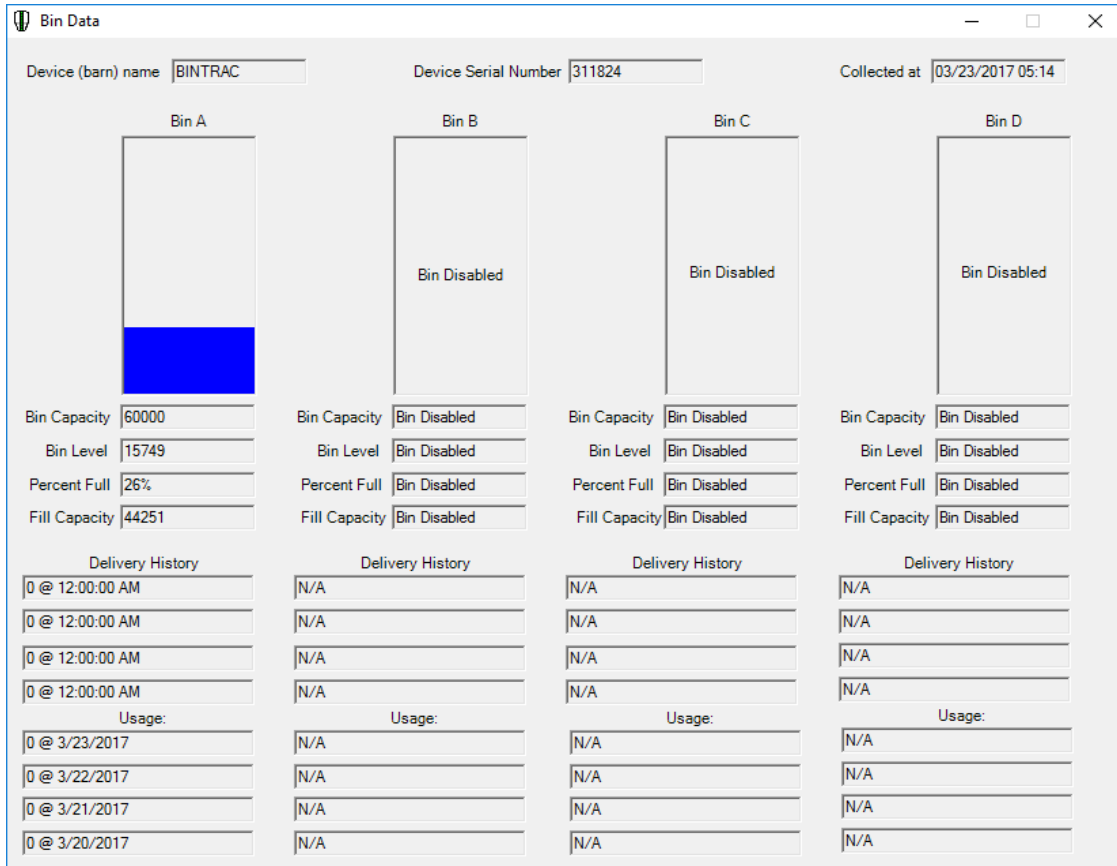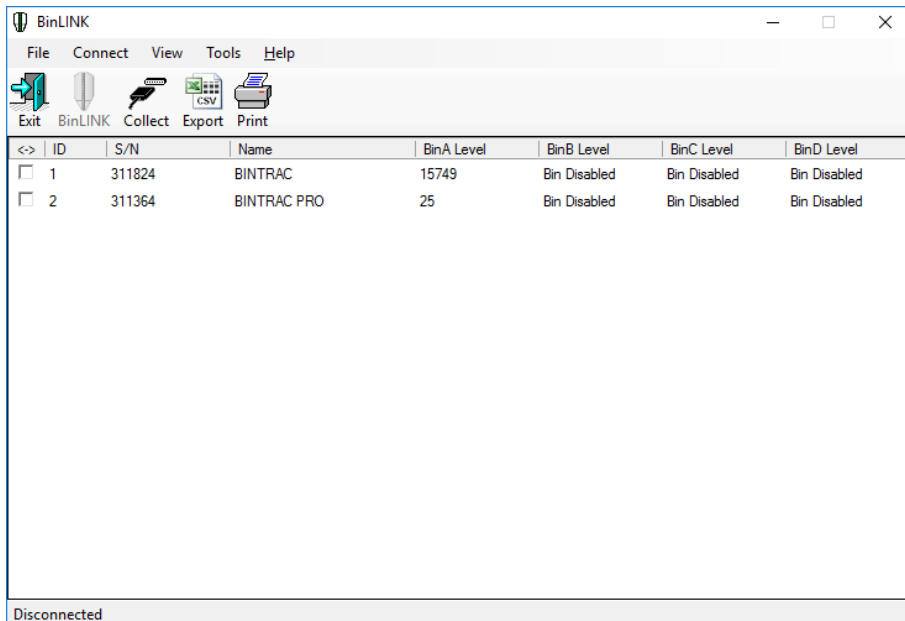 - o 5 blinks = No DHCP response

BinTrac Vision

When connected via Internet or Cellular, you will have the ability to access our BinTrac Vision website. The BinTrac Vision website allows you to manage your feed inventory and consumption data remotely from anywhere and from any device. It lets you go deeper into the data to make business decisions related to process control and feed mill performance. It allows you to better manage phase feeding and the overall health of the animals. The ability to view the data from anywhere makes for a safer work environment along with improving bio-security on-site. Below is an example of the data available to you on the website.

BinLink

When connected via a serial connection, you will have the ability to use our BinLink software. BinLink allows site data to be viewed on the connected PC, including current bin levels, the last 4 fill amounts, and feed usage data. The data can also be exported to a .CSV file for use in other applications.

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 Communication Hub contains NO USER SERVICEABLE PARTS. If the product stops working for any reason, it must be returned for repair. If opening the unit is necessary, use caution in reattaching the faceplate. Ensure that the faceplate screws are no tighter than 8 in lbs.

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.
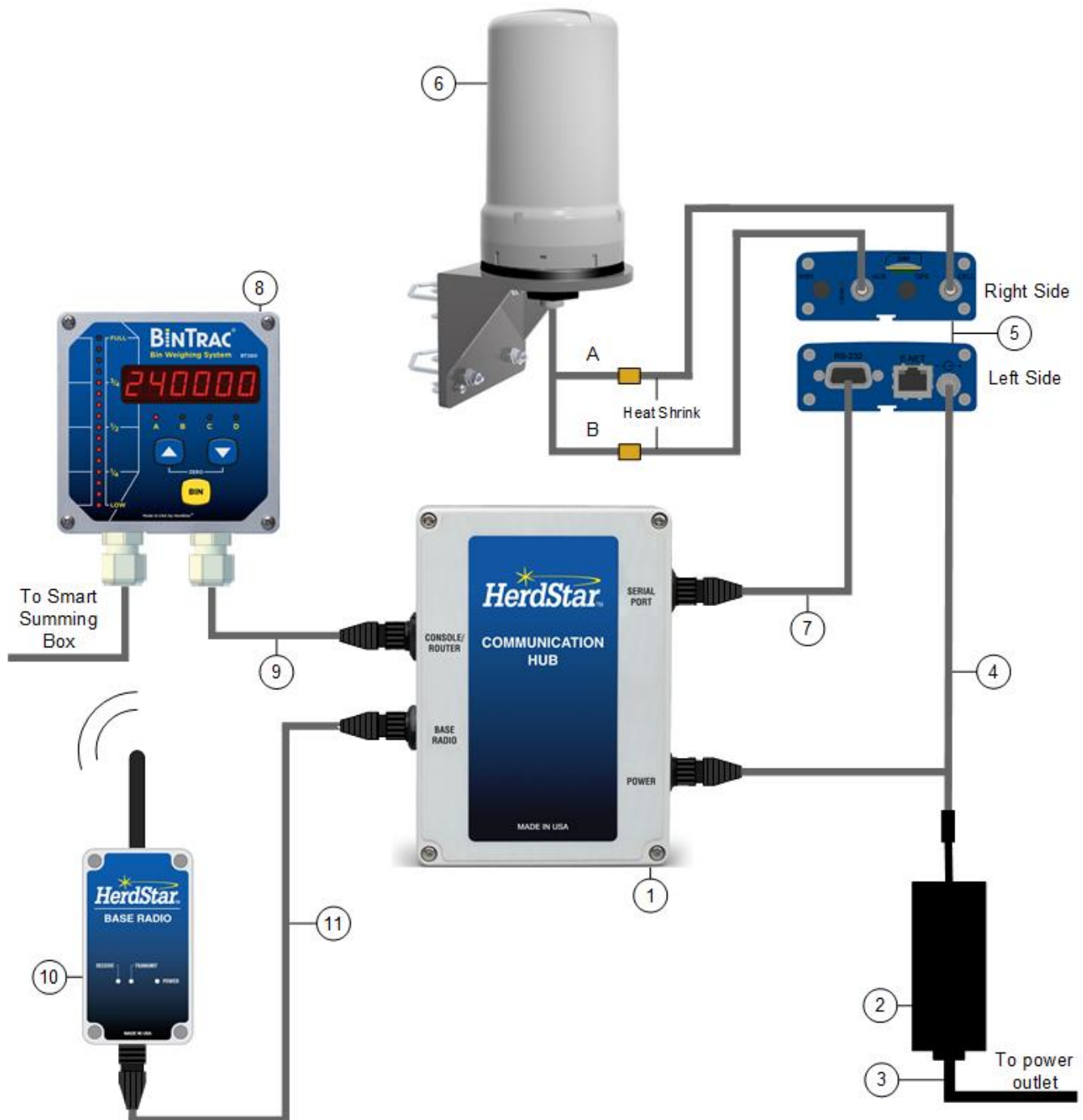
EXCEPT AS STATED IN ABOVE, HERDSTAR, LLC DOES NOT MAKE ANY WARRANTY AS TO THE GOODS OR SERVICES AND, IN PARTICULAR, DOES NOT MAKE ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND BUYER IS SOLELY RESPONSIBLE FOR DETERMINING THE PROPER APPLICATION AND USE OF THE GOODS.

HerdStar, LLC makes no representation or warranty that individual animals, or any given population of animals, will utilize any of HerdStar, LLC's goods in the manner for which the goods were intended or designated. Any component parts that are not manufactured by HerdStar, LLC, such as electrical motors and controls, are excluded from any warrant by HerdStar, LLC, although such parts may be covered by separate warranties of the respective manufacturers. This warranty set forth above does not apply if all components of a system are not supplied by HerdStar, LLC or if the goods are not purchased from and installed by an authorized distributor or company warehouse, or installed and operated in accordance with HerdStar LLC's specifications and instructions.

HERDSTAR, LLC SHALL NOT HAVE ANY TORT LIABILITY TO BUYER OR ANY OTHER PERSON WITH RESPECT TO ANY OF THE GOODS OR SERVICES AND SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY, INDIRECT OR PUNITIVE DAMAGES ARISING FROM ANY PRODUCT DEFECT, DELAY, NONDELIVERY, RECALL OR OTHER BREACH. BUYER SHALL NOT HAVE ANY RIGHT OF REJECTION OR OF REVOCATION OF ACCEPTANCE OF THE GOODS.
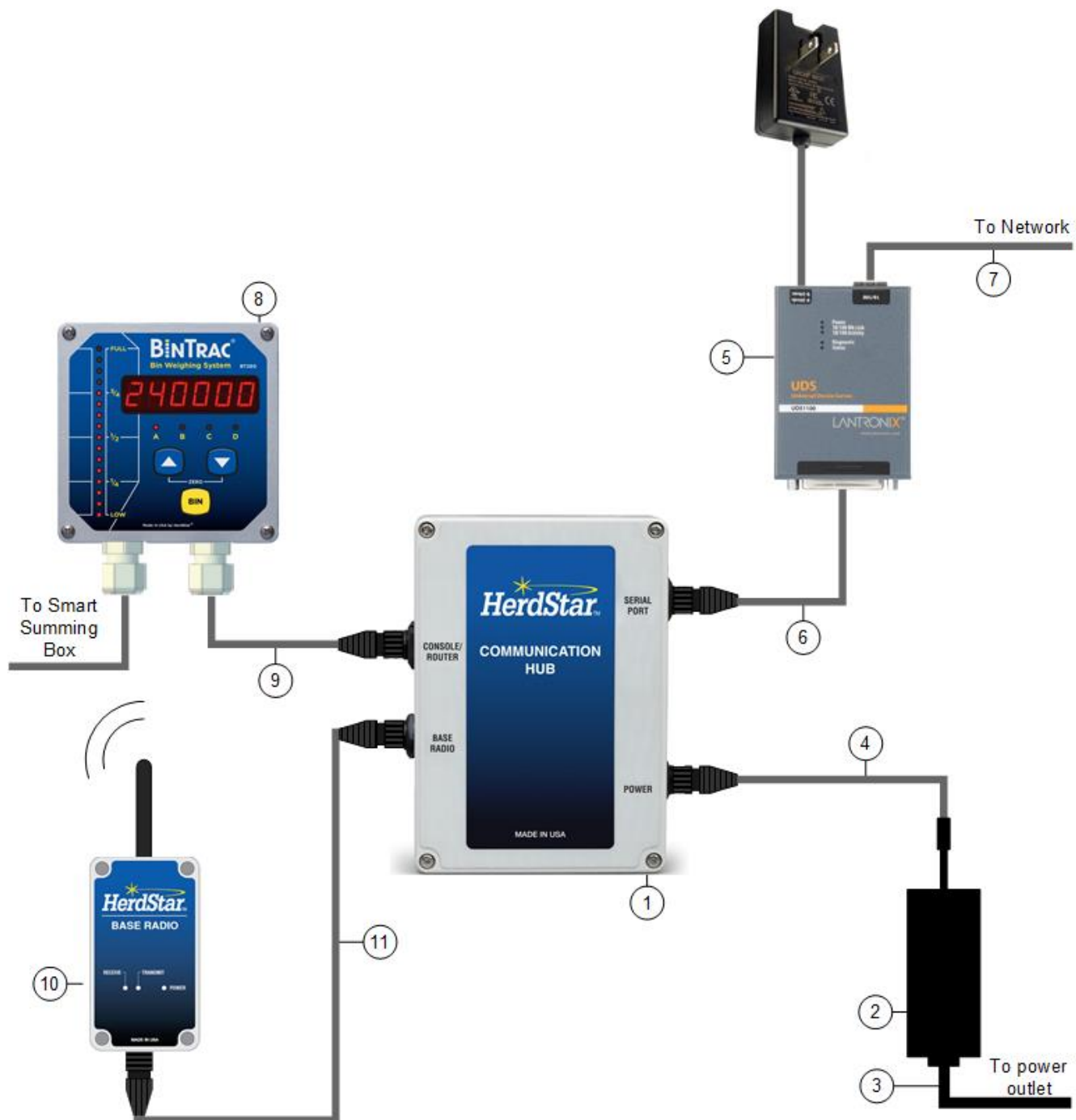
Appendix A

BiNTRAC®

Cellular

1 — Communication Hub – Part # ASY-000232
2 — Power Supply – Part # POW-000004
3 — Line Cord – Part # COR-000002
4 — Power Cable – Part # ASY-000242
5 — Cellular Modem-Part # COM-000012
6 — Antenna – Part # ANT-000005
7 — RS-232 Cable – Part # ASY-000136
8 — BinTrac Indicator – Part # MCA-000001/000301
9 — Indicator Cable – Part # CAB-000029/55/60*
10 — Base Radio – Part # ASY-000027
11 — Base Radio Cable – Part # CAB000004/5/10/13/14*

Note: Parts 4-6 are included in KIT-000031 & parts 1-7 are included in KIT-000005   *Part number varies based on length

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Internet

To Network

To Smart Summing Box

To power outlet

1 — Communication Hub – Part # ASY-000232

2 — Power Supply – Part # POW-000004

3 — Line Cord – Part # COR-000002

4 — Power Cable – Part # ASY-000188

5 — Serial to Ethernet Device – Part # COM-000005

6 — Serial Cable – Part # ASY-000070

7 — Ethernet Cable 10' – Part # CAB-000024

8 — BinTrac Indicator – Part # MCA-000001/000301

9 — Indicator Cable – Part # CAB-000029/55/60*
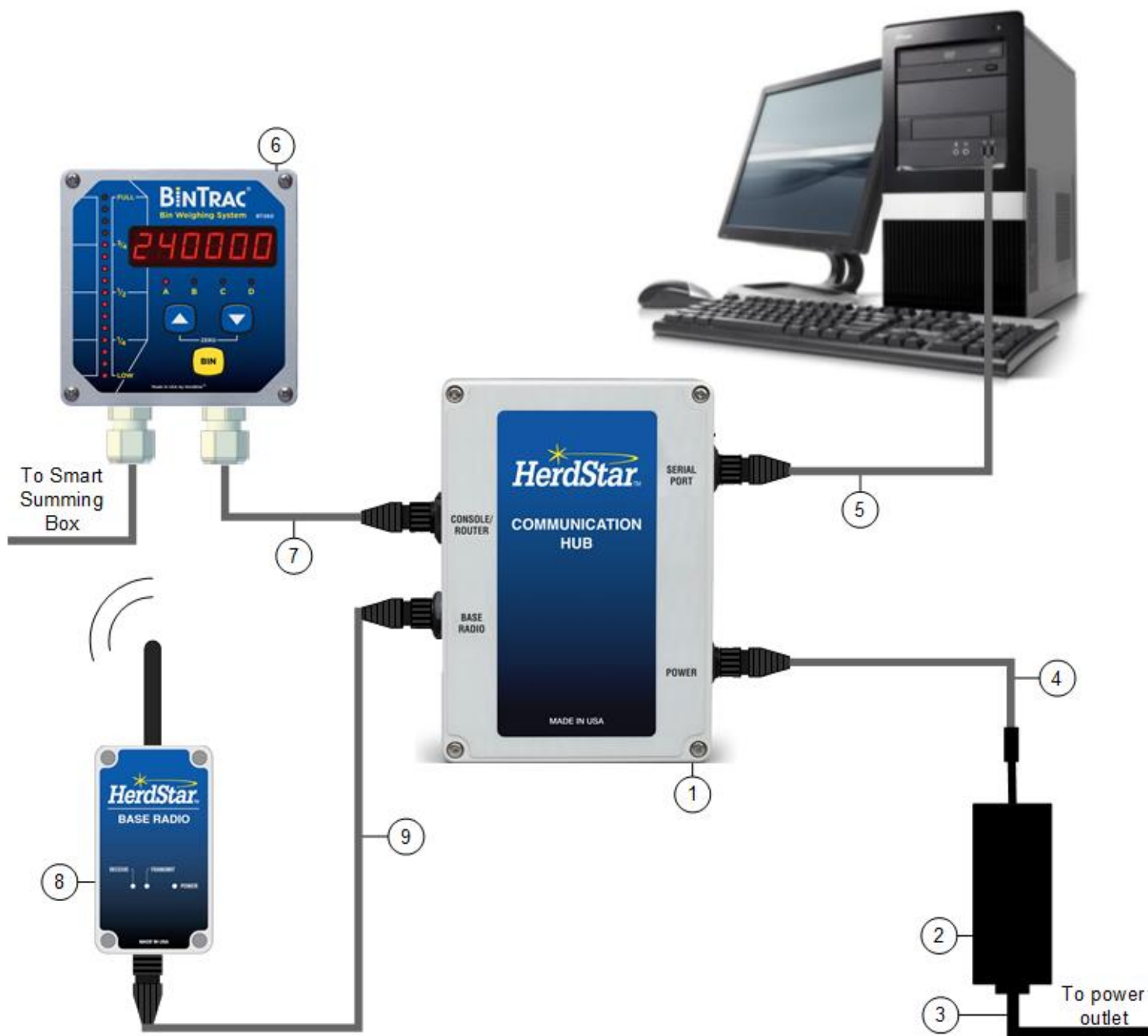
10 — Base Radio – Part # ASY-000027

11 — Base Radio Cable – Part # ASY000004/5/10/13/14*

Note: Parts 1-7 are included in KIT-000002

Part number varies based on length

BinTrac®

Serial

1 — Communication Hub – Part # ASY-000232

2 — Power Supply – Part # POW-000004

3 — Line Cord – Part # COR-000002

4 — Power Cable – Part # ASY-000188

5 — RS-232 Cable – Part # ASY-000163

6 — BinTrac Indicator – Part # MCA-000001/000301

7 — Indicator Cable – Part # CAB-000029/55/60*

8 — Base Radio – Part # ASY-000027

9 — Base Radio Cable – Part # ASY000004/5/10/13/14*

Note: Parts 1-5 are included in KIT-000020

Part number varies based on length