DBTB-200 Dual Breeder Control Installation Manual

Patented
U.S. Patent No. 7,980,129, Patent No. 8,581,122, Patent No. 8,853,566
U.S. Patent No. 9,310,243, Patent No. 9,651,413, Patent No. 10,082,421
Canada Patent No. 2,822,294
Korea Patent No. 1900521

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Thank you for purchasing a BinTrac Dual Breeder Control System from HerdStar, LLC.

Installation Overview

This section covers the mounting and wiring of the BinTrac system. Anyone responsible for programming and operating the BinTrac system should also read the Operator's Manual.

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 Dual Breeder Control

This is the main unit of the BinTrac system. The BinTrac Dual Breeder Control communicates with the Smart Summing Boxes to register the weight of feed in the bins. The feed level is computed and displayed on the LED bar graphs. One Dual Breeder Control can control two feed bins.

Load Cell Bracket

Four or more load cell brackets allow the BinTrac Dual Breeder Control to accurately measure the feed level 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 reading on the leg brackets to the BinTrac Dual Breeder Control.

BinTrac Power Supply

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

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 Dual Breeder Control.

BinTrac Breeder Control Remote Display

A BinTrac Breeder Control Remote Display is a standard BinTrac Breeder Control indicator configured as a Remote Display. A hardwire cable must connect the Remote Display to the BinTrac Dual Breeder Control.

Preparation

Before beginning the installation process, you need to make sure that the area surrounding each leg is clear of dirt, ice, or any other debris that may cause the 'A' frame to not sit flat. If this is not done it could cause the bin to lift unevenly and give a false reading.

List of Common Parts to be Installed

- MCA-000221/222 – BinTrac Dual Breeder Control
- MLB-XXXXXX – 2.5/5.0K/10k Ag Load Cell Bracket Assembly
- MSA-006000 – Smart Summing Box 6-Leg **OR** MSA-004000 – Smart Summing Box 4-Leg
- ASY-000237 – BinTrac Power Supply PS17

Tools Needed

- 1 – 1 1/8" open-end wrench
- 2 – 3/4" wrenches
- 1/2" Drill
- 1/2" Hammer drill or Hilti cement drill
- 1/2" metal bit
- 1/2" cement bit
- 5/16" self-tapping screws
- 5/16" hex screw tip
- 1/2" cordless drill
- Impact wrench with 1 1/8" and 3/4" sockets (optional)
- Small flat-head screwdriver
- #2 Phillips screwdriver
- Center punch

Supplies Needed

- Tie Wraps (2 per leg)
- Wire Nuts (blue or orange, 4 per bin)
- Communication Wire (4 Cond. 20 – 22 AWG, shielded)

Steps to Come

There are several steps to install the BinTrac Dual Breeder Control system. To give an overview of the installation process, these steps are outlined below.

- Mounting the 'A' frame
- Lifting the bin
- Anchoring the 'A' frame
- Wiring the Smart Summing Box
- Setting the Smart Summing Box bins
- Wiring the Power Supply
- Wiring the BinTrac Dual Breeder Control

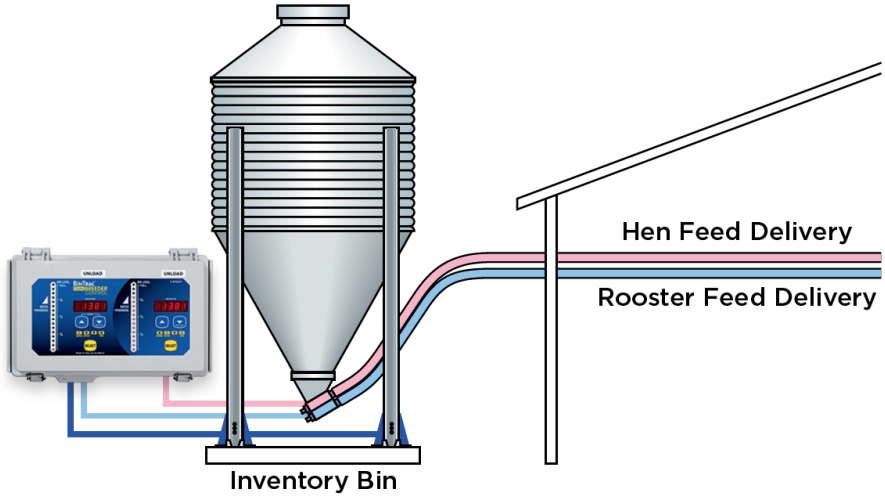
Please read through the entire installation process before attempting to install a BinTrac Dual Breeder Control System. If you have any questions, do not hesitate to contact HerdStar or a certified dealer in your area.

Configurations

The BinTrac Dual Breeder Control can be used in two different configurations based on your needs. Before beginning the setup of your system, determine which configuration you will be using. Below is an overview of the two different configurations of batching. Included with each BinTrac Dual Breeder Control is a sheet of labels that can be used to identify the functionality of each side of the display.

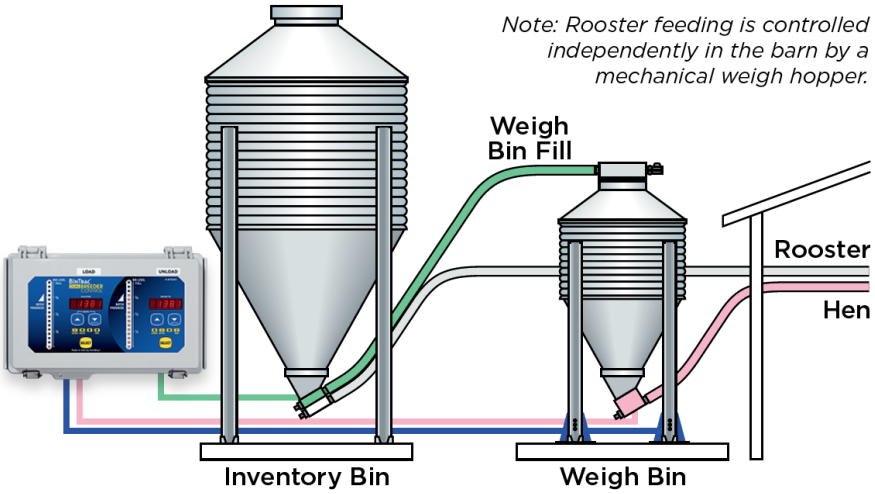
Inventory Bin with Dual Unloads

The BinTrac Dual Breeder Control can be connected to a single inventory bin for programmed batching of two independent amounts on separate delivery systems. The system can be used for both rooster (Master/Left) and hen (Remote/Right) feeding by enabling/disabling the appropriate feed delivery system. The system features an auto/manual override feature for each auger via an external switch.



Weigh Bin with Programmed Fill and Batch

This configuration provides automated filling and batching of hen feed using a weigh bin. The Remote (right) Breeder Console provides automated filling of a programmed gross weight amount into a weigh bin. The Master (left) Breeder Console provides automated loss-in-weight batching of a programmed amount for the hen feeding. There is an auto/manual override feature for each auger via an external switch.



Installation

Mount the Bracket Assembly

1. Remove all bolts connecting the leg to the footpad. Loosen the original anchor bolt but leave it intact at the bottom of the footpad. The footpad can and should be removed if it is binding or interfering with lifting the leg. (**Figure 1**)
2. Remove the **1/2”** bolts from the C-channel adapter of the bracket assembly and set them aside for now.
3. Adjust the top bolt on the bracket assembly so the C-channel is approximately **3/4”** between the top of the C-channel and the bracket.
4. Mark the holes of the C-channel on the leg and drill using **1/2”** drill bit. (**Figure 2**)
5. Put the bolts in from the C-channel side through the leg. Place a washer and Nyloc nut on each bolt and hand-tighten.
6. Position the bracket assembly so that it is **3/8”** away from the bin leg and the C-channel is centered under the load cell.

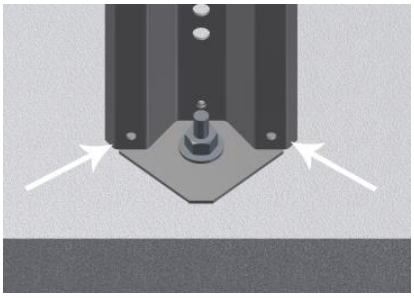


Figure 1: Remove bolts from bin leg

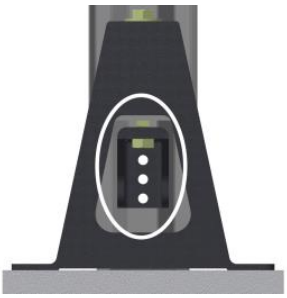


Figure 2: Mark holes of the C-Channel on the legs

Failure to properly align the bracket may cause the load cell to fail.

7. Hand-tighten the top bolt on the bracket assembly to make sure the bracket is straight and to keep it in place.
8. Tighten C-channel bolts to 33 ft-lbs. of torque. Make sure the bracket does not move during tightening.

IMPORTANT: MOUNT THE BRACKET ASSEMBLY ONE (1) LEG AT A TIME. DETACHING MORE THAN ONE LEG AT A TIME COULD ALLOW THE BIN TO TIP OVER. INJURY OR DEATH COULD RESULT!

Lift the Bin

9. Using a marker, place a line the top of the bolt. (**Figure 3**)
10. Tighten all the lifting bolts 1 or 2 full turns at a time until each leg is at 8 turns.
11. There must be a **½”** (+/- 1/8”) gap underneath each leg when lifting is complete. (**Figure 4**)
12. The top of the C-channel **MUST NOT** be up against the bracket assembly: a clearance of 1/4**”** (+/- 1/8”) must be maintained. (**Figure 5**)
13. Be sure to check height of each leg and verify the bracket is not touching the leg.

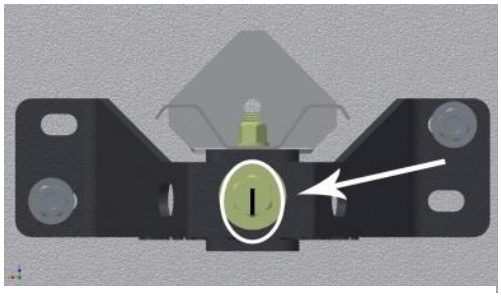


Figure 3: Place a line centered on top of bolt.

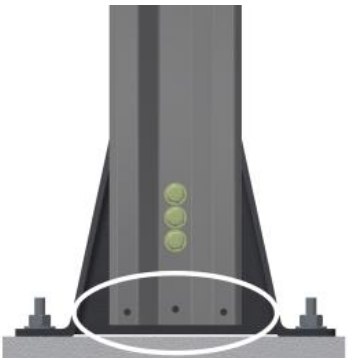


Figure 4: Lift until there is a 1/2" (+/- 1/8") gap.

Figure 5: Leave 1/4" (+/- 1/8") gap between C-channel and bracket.

Repeat Steps 1 – 13 for all bin legs. After completing steps 1-13 for each leg (and before continuing to step 14), re-examine each leg to ensure proper clearances as noted and adjust as needed.

Anchor the Bin

14. Drill two anchor bolt holes 2 1/4" deep in the pad diagonally opposite of each other. (**Figure 6**)

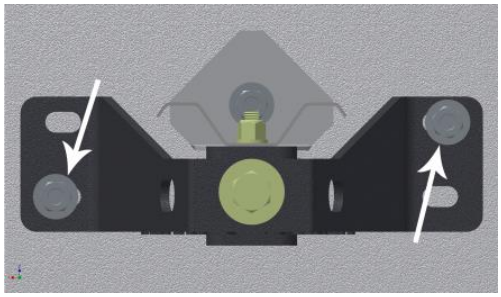


Figure 6: Drill anchor bolts 2 1/4" deep.

When anchoring 15K or greater assemblies you will use four (4) anchor bolts.

15. Hammer bolts into cement until they are firmly in place.
16. Tighten the nuts of the anchor bolts using a socket or hammer drill to anchor the bracket assembly. Torque to 55 ft.-lbs.
17. Drop retention clip into place over bolt as shown in **Figure 7**.

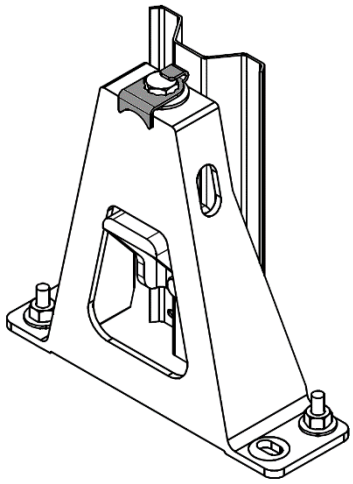


Figure 7: Retention clip (shaded) over bolt

Wiring the Smart Summing Box

In order to get a reading from the load cells, you need to tie them all together into a Smart Summing Box. One Smart Summing Box per bin is required. Refer to **Addendums A** through **C** for more in depth wiring illustrations.

18. Mount the Smart Summing Box (SSB) on the crossbar under the bin near the front using self-tapping screws where it is easily accessible for maintenance.
19. Run the cable from each load cell to the Smart Summing Box.
20. Before plugging the cables in, remove the black plastic lock nut from each cable strain relief. Remove the red plug from each predrilled hole. Pass the cable through the box and then the nut. Be sure to have a drip loop outside the SSB.
21. Plug in the load cells starting in the upper left until all load cells are plugged in.
22. Pass the communication cable through the gray liquid tight strain relief on the right side of the enclosure.
23. Using an appropriately sized wire nut, connect the wires according to the chart in **Figure 8**.
24. Attach the GREEN/YELLOW ground wire to the bin via one of the screws used to attach the SSB.
25. Run the communication wire to the BinTrac Dual Breeder Control.
26. Tighten every strain-relief (“dome nut”) on the box. First, tighten the nuts to attach the strain reliefs to the box. Then, tighten the dome nut until the cable cannot be pulled out of the box.
27. Set the bin to A using the dip switches inside the summing box. (**Figure 9**).

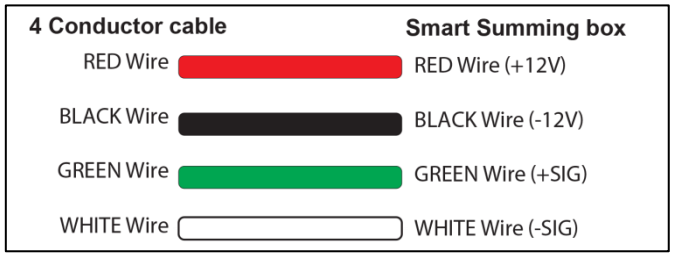
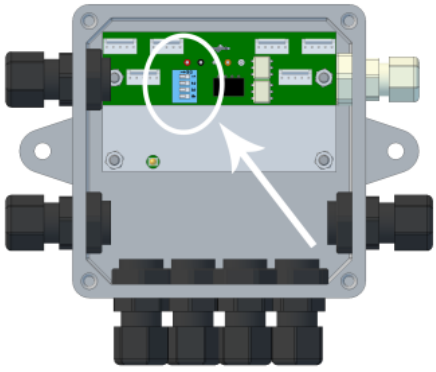


Figure 8: Connect wires following the above chart.



BIN	S1	S2	S3	S4	
A	OFF	OFF	OFF	OFF	
B	ON	OFF	OFF	OFF	
C	OFF	ON	OFF	OFF	
D	ON	ON	OFF	OFF	

Figure 9: Set appropriate bin using dipswitch.

Wiring the BinTrac Power Supply

28. The Power Supply (PS17) is intended for inside use. As the BinTrac Breeder Control is installed in an office or building walkway, the Power Supply can be installed in the same area near an outlet.
29. Mount the Power Supply in a location that allows the 12VDC cable to be ran a short distance to the Breeder Control unit.
30. Once the cable is routed from the Power Supply to the BinTrac Breeder Control and has been tied up out of the way, cut off any excess cable and connect into Breeder Control unit as shown below.

Wiring the BinTrac Dual Breeder Control

31. Locate the terminal block in the BinTrac Dual Breeder Control labeled 'SUMMING BOX' (see **Figure 10**).
32. Insert the wires into the terminal block where RED is 12V OUT (+), GREEN is COM IN (+), WHITE is COM IN (-), and BLACK is 12V OUT (-).
33. Connect the wires from the BinTrac power supply to the terminal block labeled 'POWER INPUT' (see **Figure 10**) where WHITE is 12V IN (+) and BLACK is 12V IN (-).
34. After wiring the Smart Summing Box to the BinTrac Dual Breeder Control Indicator, you will then wire the Auger Relay to the BinTrac Dual Breeder Control Indicator as shown in the addendums (**pages 11 through 14**). A voltage suppressor is provided with the Relay Kit (KIT-000028) and is to be connected across the Auger Relay coil. In addition, an auto/manual override switch is included in the kit and should be installed as well.

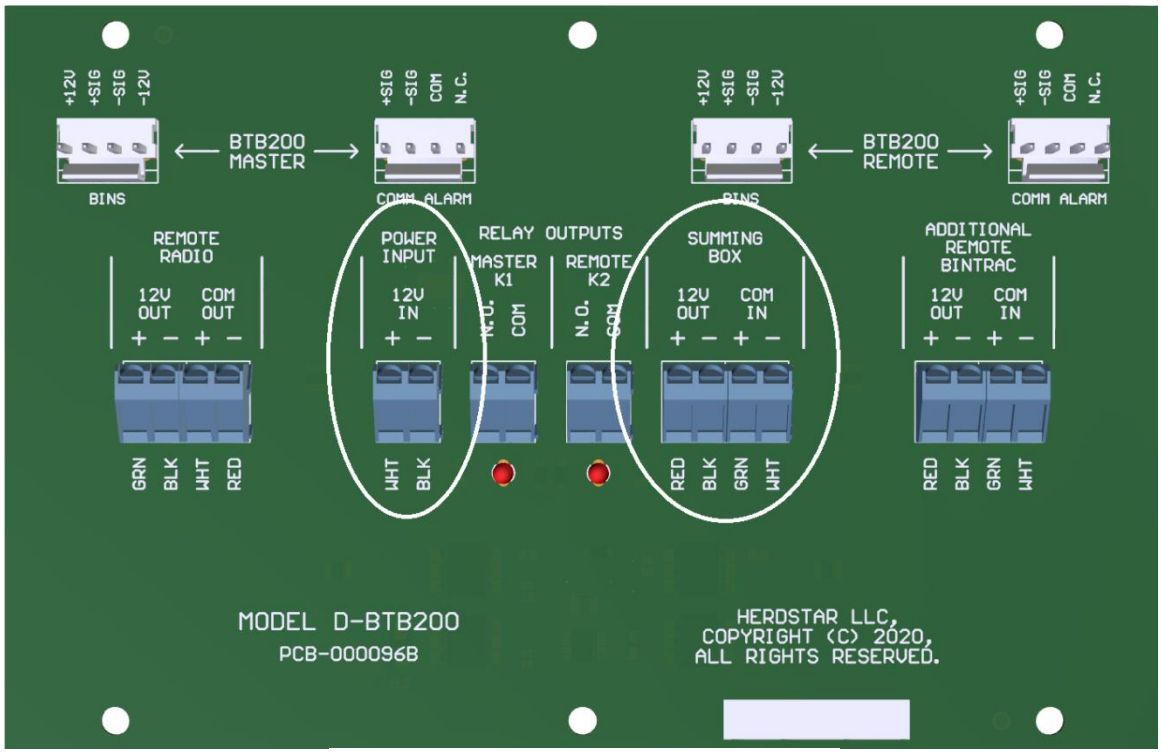


Figure 10: Insert wires in appropriate terminal block.

Reference **Addendum C** for complete system wiring diagrams for each configuration.

Wiring a BinTrac Indicator as a Remote Display

A Remote Display is a BinTrac Indicator (BT200 / BT260) programmed as a Remote Display which displays the same weight data as the local BinTrac Dual Breeder Control. The Remote Display receives all of its settings (except for enabled bins) from the BinTrac Dual Breeder Control. Calibration and Zero must be done on the BinTrac Dual Breeder Control.

1. Connect the wiring between the Remote Display and the BinTrac Dual Breeder Control. Power can be supplied directly to the Remote Display or from the BinTrac Dual Breeder Control.

BinTrac Dual Breeder Control Indicator DBTB200 ADDITIONAL REMOTE BINTRAC	BinTrac Indicator (BT200) programmed as Remote Display
PWR OUT +12V	COMM +12V
COM IN (+)	COMM +SIG
COM IN (-)	COMM –SIG
PWR OUT -12V	COMM -12V

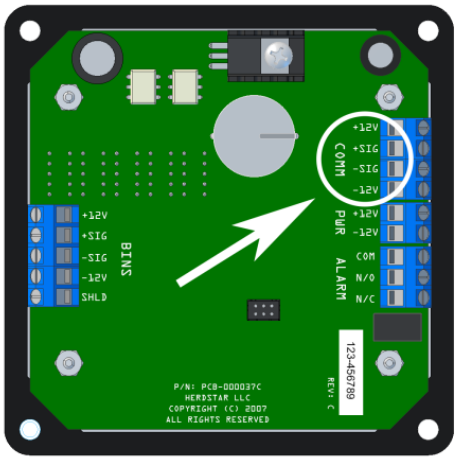


Figure 11: DBTB200 ADDITIONAL BINTRAC REMOTE port to COMM port on BT200 Remote Indicator

BinTrac Dual Breeder Control Indicator DBTB200 ADDITIONAL REMOTE BINTRAC	BinTrac Indicator (BT260) programmed as Remote Display
PWR OUT +12V	12V IN+
COM IN (+)	+COM OUT
COM IN (-)	-COM OUT
PWR OUT -12V	12V IN-

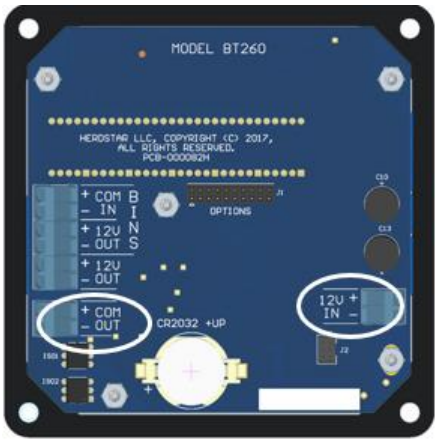


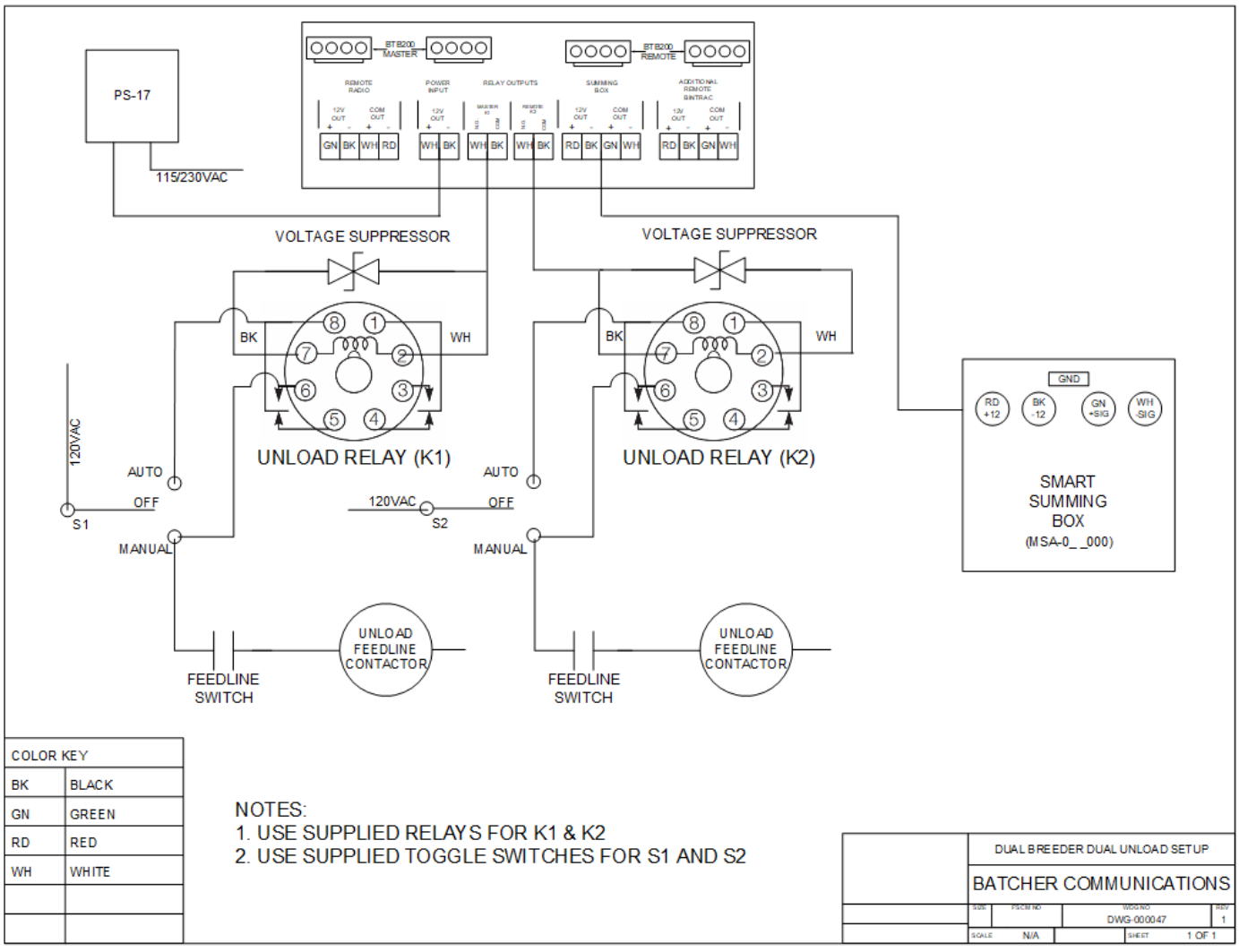
Figure 12: DBTB200 ADDITIONAL BINTRAC REMOTE port to 12V IN and COM OUT port on BT260 Remote Indicator

Addendum A – Dual Unload Relay Wiring Diagram

Below is a reference diagram for wiring up the Dual Breeder Control for a Dual Unload Batch Method.

Please reference BinTrac Part # KIT-000028

Item #	Part Number	Part Description	Qty
1	REL-000017	RELAY GEN PURPOSE DPDT 10A 125V (K1)	2
2	CON-000126	SOCKET RELAY 8 OCTAL DIN RAIL	2
3	ASY-000213	ASY VOLTAGE SUPPRESSOR	2
4	SWI-000025	SWITCH TOGGLE SPDT 5A ON-OFF-ON (SW1)	2
5	SWI-000026	TOGGLE SWITCH BOOT	2

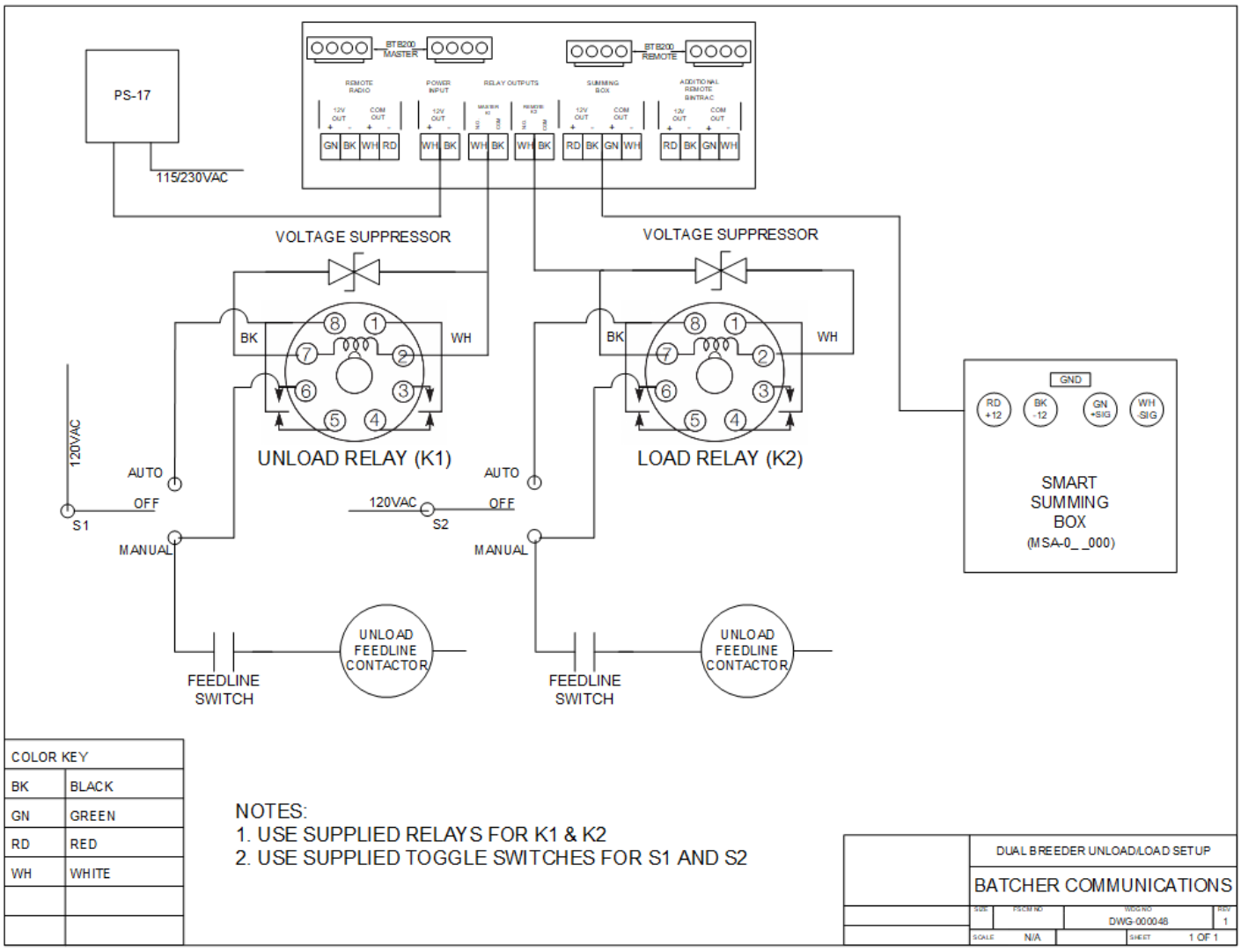


Addendum B – Unload/Load Relay Wiring Diagram

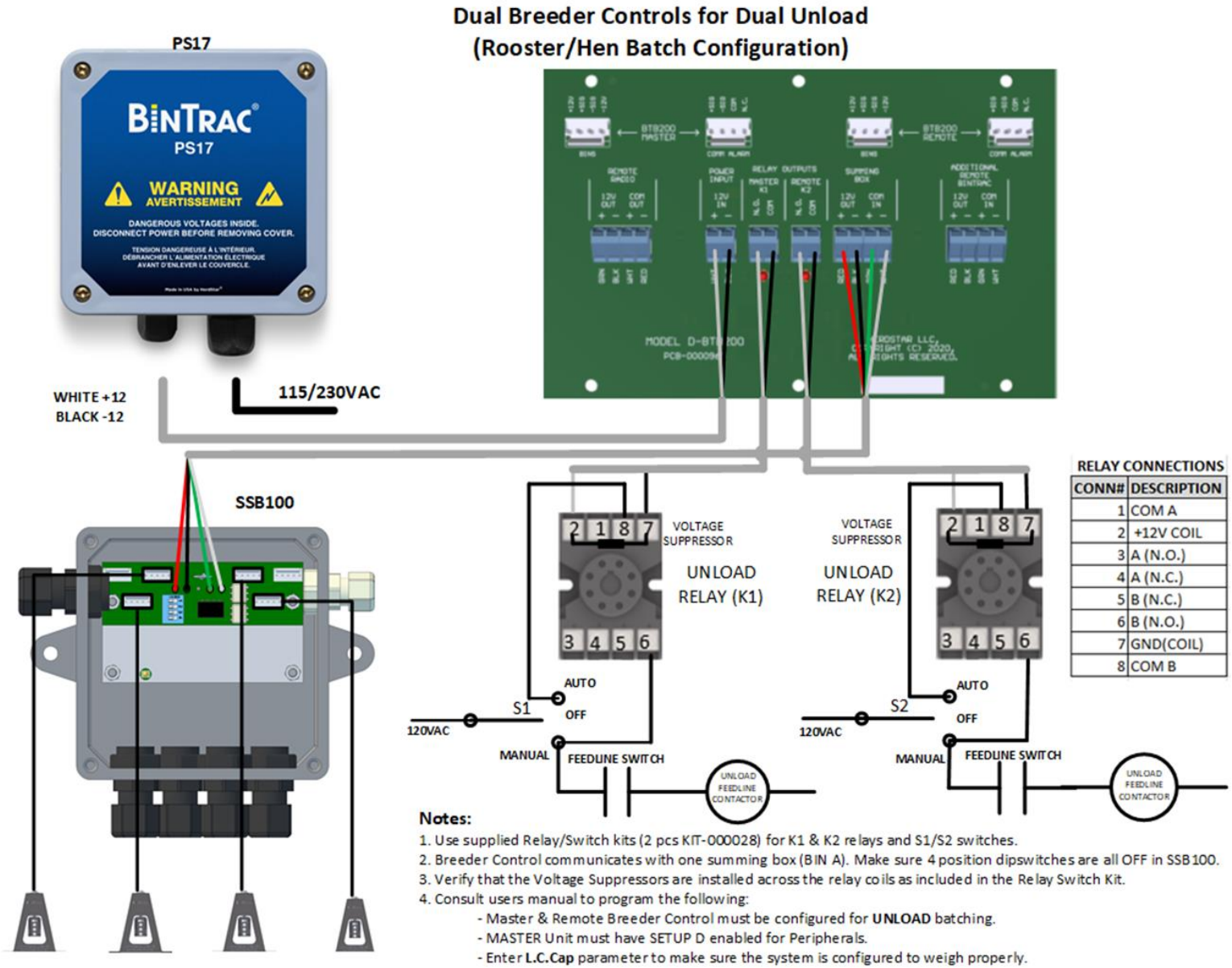
Below is a reference diagram for wiring up the Dual Breeder Control for a Unload/Load Batch Method.

Please reference BinTrac Part # KIT-000028

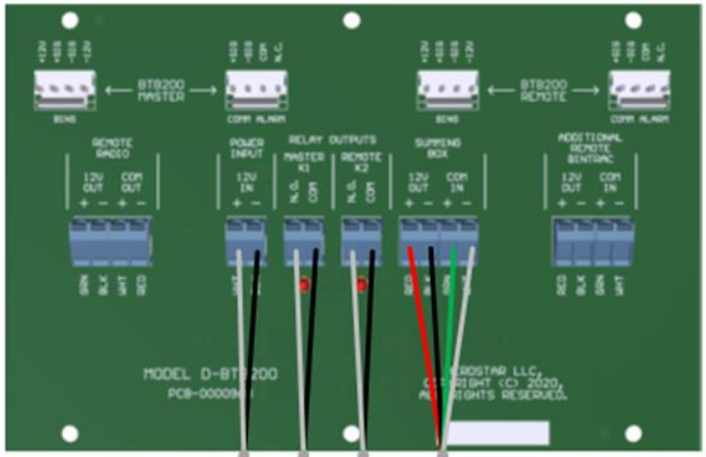
Item #	Part Number	Part Description	Qty
1	REL-000017	RELAY GEN PURPOSE DPDT 10A 125V (K1)	2
2	CON-000126	SOCKET RELAY 8 OCTAL DIN RAIL	2
3	ASY-000213	ASY VOLTAGE SUPPRESSOR	2
4	SWI-000025	SWITCH TOGGLE SPDT 5A ON-OFF-ON (SW1)	2
5	SWI-000026	TOGGLE SWITCH BOOT	2



Addendum C - Complete Wiring Diagrams

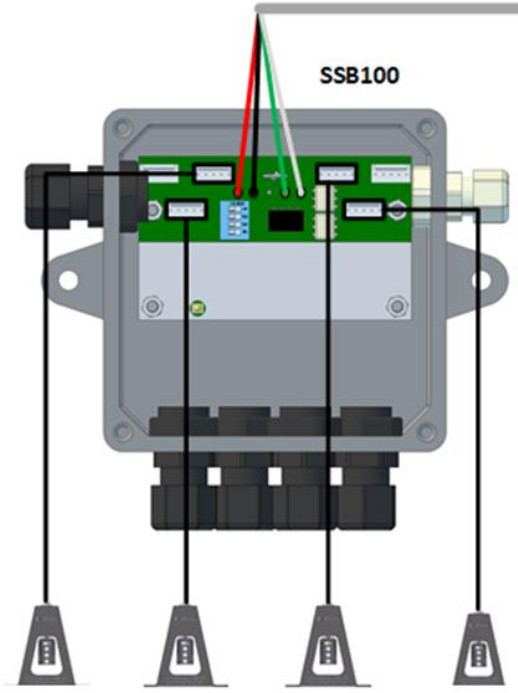


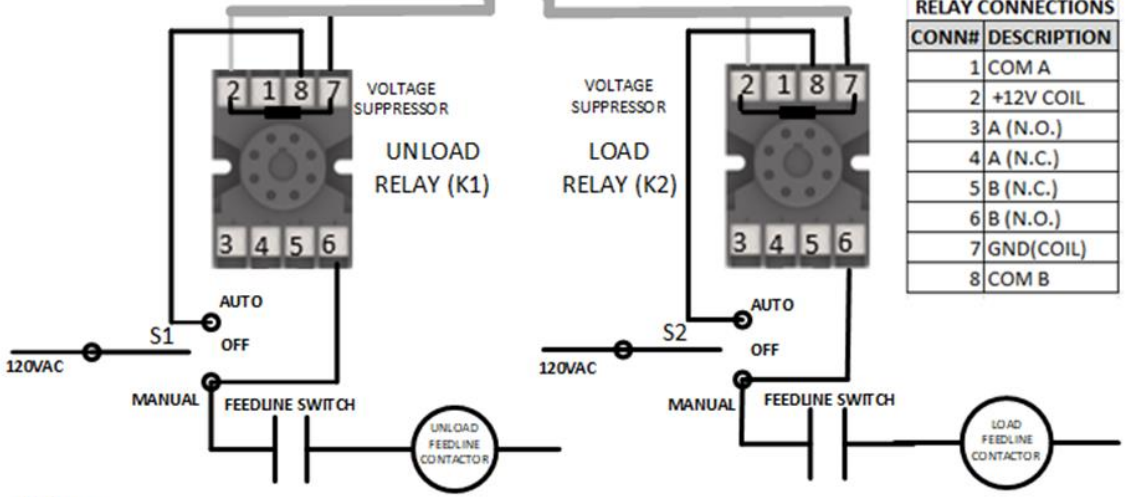
Weigh Bin with D-BTB200 for Programmed Fill and Batch Configuration



WHITE +12
BLACK -12

115/230VAC





RELAY CONNECTIONS

CONN#	DESCRIPTION
1	COM A
2	+12V COIL
3	A (N.O.)
4	A (N.C.)
5	B (N.C.)
6	B (N.O.)
7	GND(COIL)
8	COM B

Notes:

1. Use supplied Relay/Switch kits (2 pcs KIT-000028) for K1 & K2 relays and S1/S2 switches.
2. Breeder Control communicates with one summing box (BIN A). Make sure 4 position dipswitches are all OFF in SSB100.
3. Verify that the Voltage Suppressors are installed across the relay coils as included in the Relay Switch Kit.
4. Consult users manual to program the following:
   - Enter **L.C.Cap** parameter to make sure the system is configured to weigh properly.

HerdStar BinTrac® Product 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.

BinTrac Breeder Control Startup and Warranty Validation Checklist

A-Frame Bracket Inspection Checklist – Reference figures below

Yes	No	
☐	☐	Proper C-Channel clearance – **Figure 1**
☐	☐	Bin leg properly lifted off the concrete pad – **Figure 2**
☐	☐	Proper clearance between bin leg and A-Frame Bracket – **Figure 3**

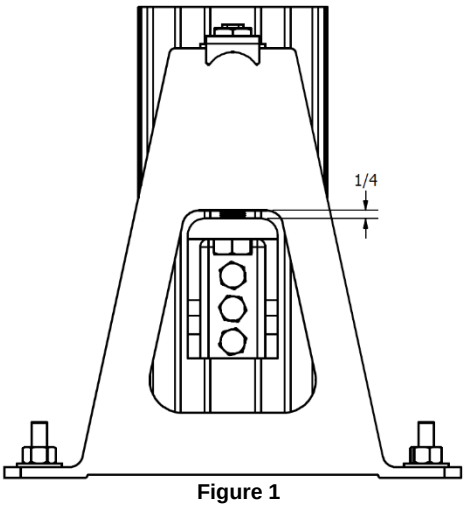


Figure 1

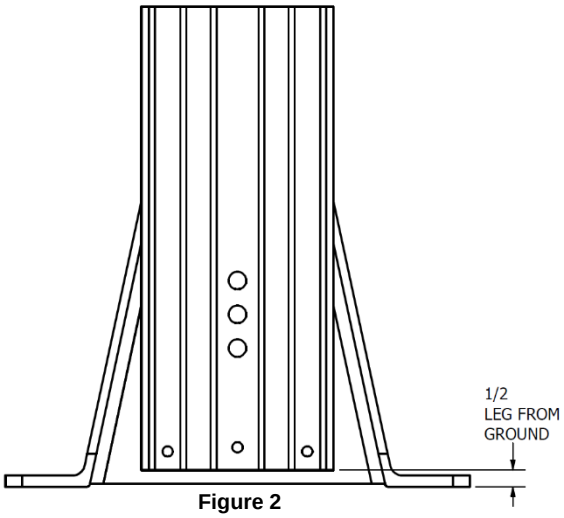


Figure 2

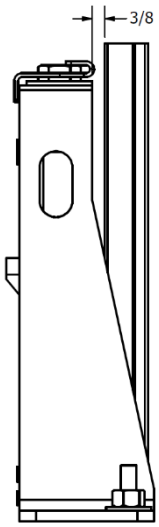


Figure 3

Smart Summing Box and Load Cell Inspection

Yes	No	
☐	☐	Drip loops at all connection points (Smart Summing Box and load cells)
☐	☐	Mounted on an interior crossmember to avoid excessive water exposure
☐	☐	Proper High Voltage AC & DC wiring separation
☐	☐	Inspect load cell cables for damage from Smart Summing Box to load cell

BinTrac Breeder Control(s) – Refer to Operator's manual for Controller setup & installation scenarios

Yes	No	
☐	☐	"Setup" – Reference the manual to verify the controller is correctly set as a Master or Remote depending on your installation scenario
☐	☐	"Batch" Setup – Load or Unload – depending on your installation scenario
☐	☐	"Rated" Setup = 3.0
☐	☐	"L.C.CAP" Setup = Load cell capacity multiplied by the number of legs on the bin
☐	☐	"Incr" Setup = User defined. Default is 1
☐	☐	"Full" Setup – Material capacity of bin
☐	☐	"Zero" Setup – Empty weight of bin
☐	☐	"Year" Setup – Verify
☐	☐	"Month" Setup – Verify
☐	☐	"Date" Setup – Verify
☐	☐	"Hour" Setup – Verify *NOTE: Hour is displayed in 24-hour (military) time & is set to CST by default*
☐	☐	"Minute" Setup – Verify
☐	☐	"id" = User defined. Default is 1

General Inspection and Notes

Yes	No	
☐	☐	BinTrac Indicator is weighing correctly when applying a known load to each bin leg.
☐	☐	Electrical Conduit – Proper routing with flexible connections so that no binding or load is being applied to the bin.
☐	☐	Feedline(s) properly supported & not binding or applying additional load to the bin.
☐	☐	Relay kit with on/off/auto switch is properly installed and functioning.
☐	☐	Ensure retention clips are placed over bolts on top of each A Frame (see **Page 9, Figure 7**)

NOTES_____

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****WARNING****

If “No” is checked for any of these items, please consult your dealer as it may affect the performance and warranty on this system.

Site Name and Location _____

Inspected by _____

Date _____/_____/_____

Please fill out and return a copy to:
BinTrac by HerdStar
1400 Madison Ave Suite 504
Mankato, MN 56001

Phone - 507-344-8805
Fax – 507-344-8009
Email – service@herdstar.com
Website - www.bintrac.com