Bin Monitor Installation Guide – 63 sensor type boards:

Power Cord – the pre-installed power cord is 3 prong, and is to go to a 120v w/ground outlet only.

Antenna: Cell Phone units (units with communications board) or Radio units

Cell: Make sure magnetic antenna is placed on top of the metal box or on steel bin/building with as few obstructions as possible. Be sure antenna cable does not get kinked, cut, damaged during installation.

Radio: Make sure antennas are placed outdoors if possible and have good line-of-sight with each other. Make sure there are as few obstructions as possible. Make sure distance between units doesn't exceed antenna capacity. (Contact AgSense for details on antenna options/distance)

Data Cable between boxes:

In a multiple board system with two or more boxes containing sensor boards, there is a screw terminal strip in each box labeled "IN" and "OUT" - under each "IN" and "OUT" there are four terminals: "B" "A" "5V" "GND"

Starting at Box 1 - the main unit (the one that contains the communications board and antenna) - connect:

Box 1 "B" to Box 2 "B"
Box 1 "A" to Box 2 "A"
Box 1 "5v" to Box2 "5v"
Box 1 "GND" to Box 2 "GND"

Continue to connect all boxes together in this pattern: Box 2 "OUT" to Box 3 "IN", Box 3 "OUT to Box 4 "IN", etc…

Be sure to use appropriate sized cable between boxes - no smaller than 20 gauge between boxes that have very few sensor boards are very close together, up to 12 or 10 gauge between all boxes that have more sensor boards and/or longer distances between boxes. On longer runs, be sure to use shielded cable and/or conduit to limit electrical noise coming from other equipment.

Connecting Cables to the Sensor Boards:

Be sure to write down on paper how many cables are in each bin, and how many sensors are on each cable (note: some cables have more wires than actual sensors – **example - some cables have 12 sensor wires, but only 10 sensors – the two extra wires would not be used or attached to the sensor board – you may need to check the manufacturers tag on each cable, or ohm test all of the sensor wires to determine how many are actually connected to sensors)

Also be sure to write down on paper how many cables are installed into each sensor board, what bins those cables go to, and how many sensors each cable has starting from board 1 sensor 1. We will need all this information when you call AgSense to have us configure the system to show up on the internet correctly.

Each sensor board can hold a maximum of 63 sensors. It can also hold up to 8 separate cables, but all of those cables sensors added together cannot exceed the limit of 63 sensors per board.

NOTE: if a sensor board does not have enough positions left to fit the entire cable onto that board, you must move the entire cable to the next board.

Starting with Bin 1, Cable 1, Sensor 1 (sensor 1 of each cable being the bottom of the bin – see temp cable color codes in the examples) , start installing the sensor wires into the sensor boards starting at board 1 sensor 1, see examples below.

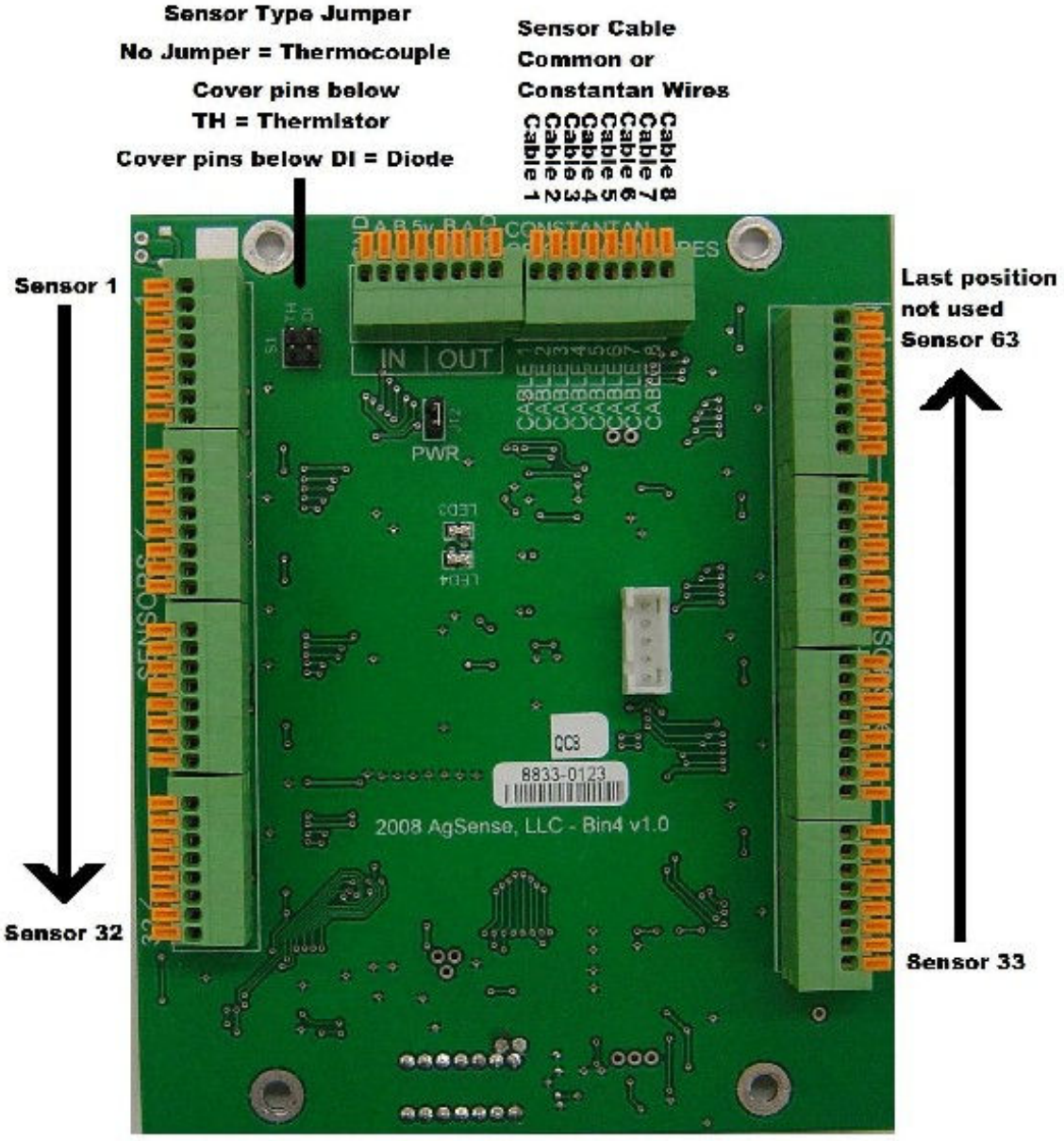
Example 1: 3 cables, 6 sensors each

Cable 1, Sensors 1-6 go into board positions 1-6
Cable 1 common wire goes into position marked “Cable 1” at the top of the board.

Cable 2, Sensors 1-6 go into board positions 7-12
Cable 2 common wire goes into position marked “Cable 2” at the top of the board.

Cable 3, Sensors 1-6 go into board positions 13-18
Cable 3 common wire goes into position marked “Cable 3” at the top of the board.

NOTE: If a cable has more than 1 common/constantan wire, (like some thermocouple cables) all of the common/constantan wires for each individual cable go into the same “Cable” terminal at the top of the board.


Sensor Type Jumper
No Jumper = Thermocouple
Cover pins below
TH = Thermistor
Cover pins below DI = Diode
Sensor Cable
Common or
Constantan Wires
Cable 1
Cable 2
Cable 3
Cable 4
Cable 5
Cable 6
Cable 7
Cable 8
Sensor 1
Sensor 32
Last position
not used
Sensor 63
Sensor 33
IN
OUT
PWR
SENSORS
8833-0123
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Example of some temp cable wire colors. (Check your cable supplier – your colors/sensor positions may vary) Note: this board is set up to read the cable from bottom to top. (Sensor 1 is the bottom of the bin)

Newer Boone and TSG Thermocouple cables: (not all cables will have this many sensors, and some cables may have unused wires that are not connected to sensors – see manufacturers tag or ohm test each cable before installing)

Orange Common Wire

Color	Terminal Strip Position Number
Clear	**18**
Yellow	**17**
Red	**16**
Green	**15**
Blue	**14**
Black	**13**

Brown Common Wire

Color	Terminal Strip Position Number
Clear	**12**
Yellow	**11**
Red	**10**
Green	**9**
Blue	**8**
Black	**7**

White Common Wire

Color	Terminal Strip Position Number
Clear	**6**
Yellow	**5**
Red	**4**
Green	**3**
Blue	**2**
Black	**1**

Bottom of the Bin

Opi Cables with Diode or Thermistor Sensors:

OPI 8 Sensor Cables

White Common Wire

Color	Cable 1 - Terminal Strip Position Number
Grey	**8**
Purple	**7**
Blue	**6**
Green	**5**
Yellow	**4**
Orange	**3**
Red	**2**
Brown	**1**

Bin Lite Installation – 1 cable, 12 sensors max

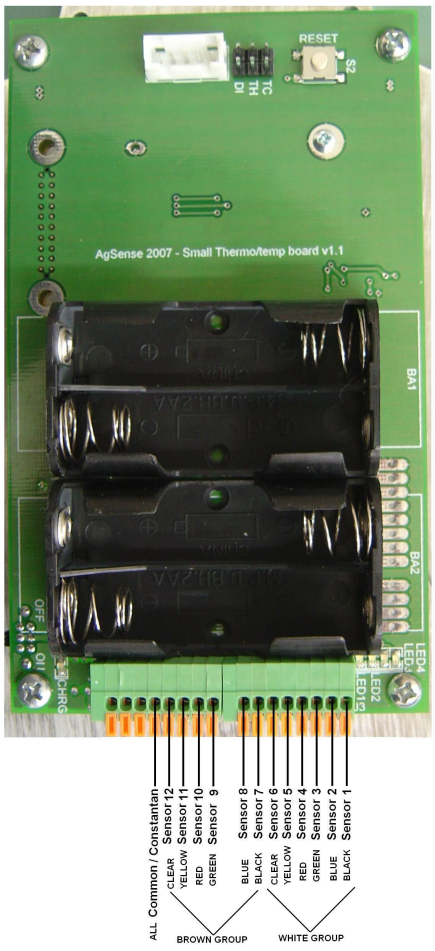
Cable and Bracket installation into bin:

1. Line up bracket between ribs of the bin
2. Drill a 1-5/8” hole where the pipe lines up on the bin roof
3. Insert bracket into the hole and using the included self-tapping screws mount the bracket to the ribs of the bin.
4. Remove the weight on the end of the cable and insert it in the bin (reattach and mount per cable installation sheet).
5. Wrap the insulation around the top part of the cable and insert it into the bracket.
6. Mount the Bin monitor unit to the bracket (keep the cable glands toward the bottom of the box)
7. Caulk a bead of silicone around the bracket to avoid leaks (not included)

Wiring Instructions:

8. Open lid of bin monitor unit and install wires. (see picture below)
9. Attach whip to antenna base and mount line of site with bridge (or highest location possible)
10. Turn unit on and close box.

Thermocouple cable wiring:



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