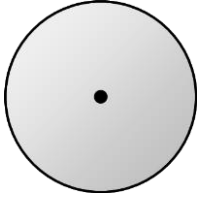
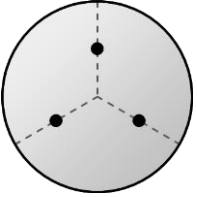
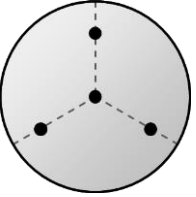
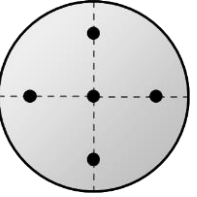


BIN-SENSE® Roof Bracket Installation

You can find these instructions in video form on our YouTube channel. Search for IntraGrain Technologies on YouTube and look the video titled *Installing Multiple Cables and Roof Brackets*.

Recommended Cable Arrangement

Bin Diameter	Less than 24 ft	24 ft to 35 ft	36 ft to 41 ft	42 ft to 47 ft
Cable Position Arrangement				
Recommended Number of Cables	1 Center	3 Radius	1 Center 3 Radius	1 Center 4 Radius

Two-Rib and Four-Rib Roof Brackets

- Roof brackets are used to support radius cables by moving the weight of the cable from the center of the roof panel to the roof ribs. Center cables don't require roof brackets because they are positioned close to the roof ribs.
- Two-Rib Roof Brackets (sometimes referred to as BRK1) are required for sensing cables less than 35 feet in length
- Four-Rib Roof Brackets (sometimes referred to as BRK2) are required for sensing cables between 35 and 50 feet in length
- For sensing cables longer than 50 feet, check with your bin manufacturer for roof truss support recommendations

Radius Cable Location

- For bins that **only require radius cables**, install the cables **one fourth** of the bin diameter from the center. Measure the distance so that the tape measure is level with the ground.
- For bins that require a **center cable and radius cables**, install the radius cables **one third** of the bin diameter from the center. Measure the distance so that the tape measure is level with the ground.
- Install radius cables centered between the ribs on the roof panels.



CAUTION Extreme care and caution must be used when climbing up a bin. Be sure to use approved safety procedures and materials such as ladders and a safety harness. When working above 1.2 metres, wear a safety harness or personal protective equipment. An approved tool belt must be worn to keep both hands free when climbing up and down a ladder.



BIN-SENSE® Roof Bracket Installation

Tools Required for Cable Installation

Follow the single cable installation guide included with the sensing cable before installing roof brackets. You will need the following tools to install a BIN-SENSE® sensing cable:

- Cordless drill
- 3/8" nut driver bit
- 1 1/2" hole saw
- Tape measure
- Side cutters

Tools Required for Roof Bracket Installation

In addition to the tools used for the single cable installation, you will need the following tools to install BIN-SENSE® roof brackets:

- 2 x 9/16" wrenches
- 7/16" nut driver bit

Included Parts

Roof brackets included the galvanized metal brackets and all required hardware as listed below:

Two-Rib Roof Bracket

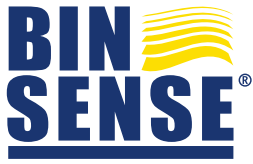
- 1 x Roof Bracket
- 2 x Threaded rod assembly
 - 2 x 3/8" threaded rod (8")
 - 8 x 3/8" nut
 - 4 x 3/8" lock washer
 - 8 x 3/8" flat washer
- 1 x Left angle bracket
- 1 x Right angle bracket
- 4 x 1/4" x 3/4" grade 8 bolt
- 4 x 1/4" flat washer
- 2 x 1/4" x 1 1/2" self-tapping screw
- 2 x 5/16" fender washer

Four-Rib Roof Bracket

- 2 x Roof bracket
- 1 x C-channel
- 2 x 3/8" x 1 1/4" Bolt
- 2 x 3/8" nut
- 2 x 3/8" lock washer
- 2 x 3/8" flat washer
- 2 x 3/8" fender washer
- 2 x Threaded rod assembly
 - 2 x 3/8" threaded rods (8")
 - 8 x 3/8" nut
 - 4 x 3/8" lock washer
 - 8 x 3/8" flat washer
- 1 x Left angle bracket
- 1 x Right angle bracket
- 4 x 1/4" x 3/4" grade 8 bolt
- 4 x 1/4" flat washer
- 4 x 1/4" x 1 1/2" self-tapping screw
- 4 x 5/16" fender washer



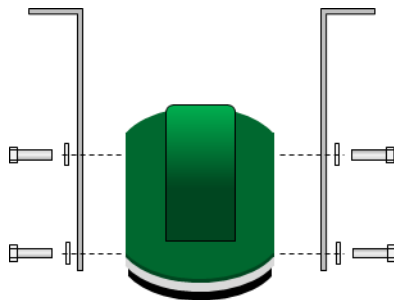
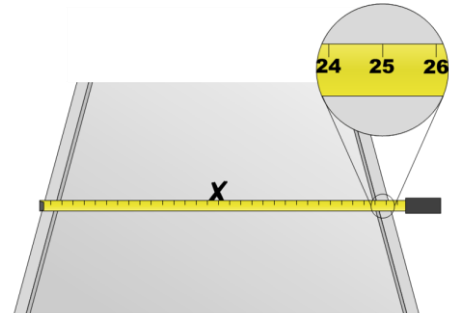
WARNING When installing two-rib or four-rib roof brackets ensure that the hanger holes of the roof bracket are positioned directly above the cable head so that the threaded rods are vertical. Failure to do so could result in roof damage.



BIN-SENSE® Roof Bracket Installation

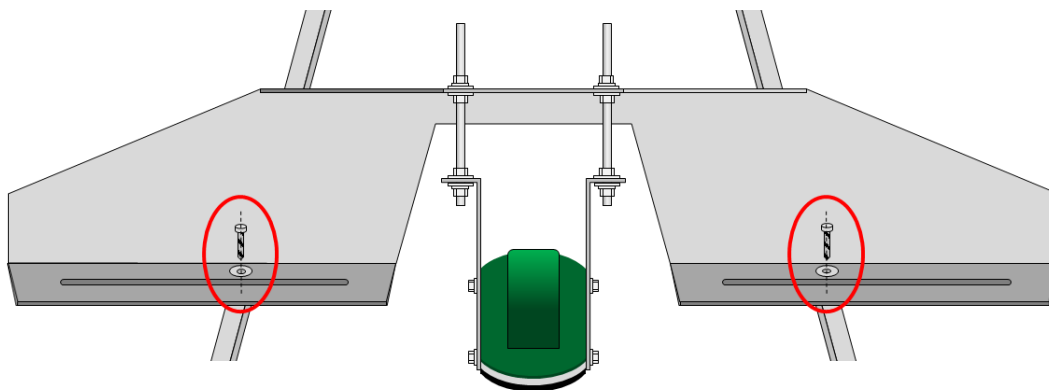
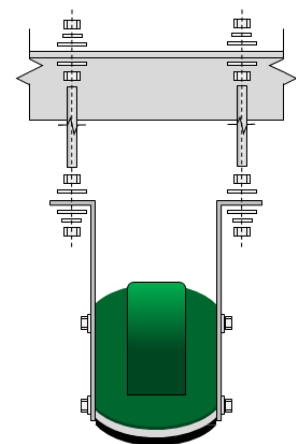
Two-Rib Roof Bracket Installation Instructions

1. Mark out the installation location on the bin. Position the sensing cable using the guidelines on the first page of these instructions. Roof brackets can reach about 25 inches between ribs so you may have to move up the roof for the bracket to fit properly.
2. Install the cable using the single cable installation guide which is included with the cable.

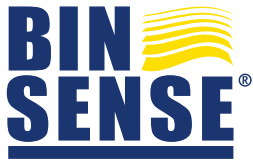


3. Once the cable is installed, attach the right and left angle brackets to the cable head using the four $\frac{1}{4}$ " x $\frac{3}{4}$ " grade 8 bolts and $\frac{1}{4}$ " flat washers.

4. Attach the threaded rods to the right and left angle brackets using the supplied nuts, lock washers and flat washers. Use the remaining nuts, lock washers and flat washers to loosely attach the roof bracket to the threaded rods.
5. Use the two $\frac{1}{4}$ " self-tapping screws and $\frac{5}{16}$ " fender washers to attach the roof bracket to the ribs of the bin.



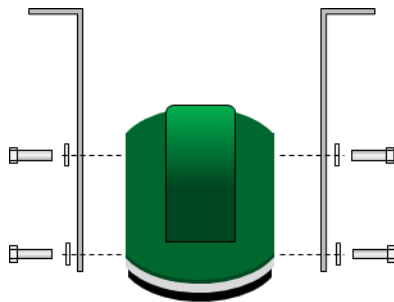
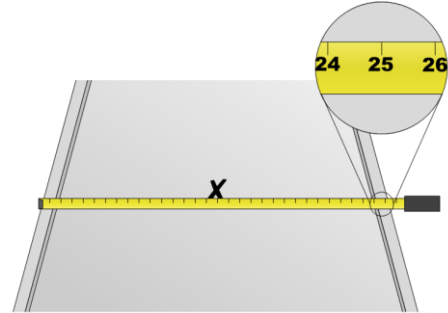
6. Using the $\frac{3}{8}$ " nuts installed on the threaded rods, adjust the gap between the roof bracket and angle brackets to support the cable head appropriately.



BIN-SENSE® Roof Bracket Installation

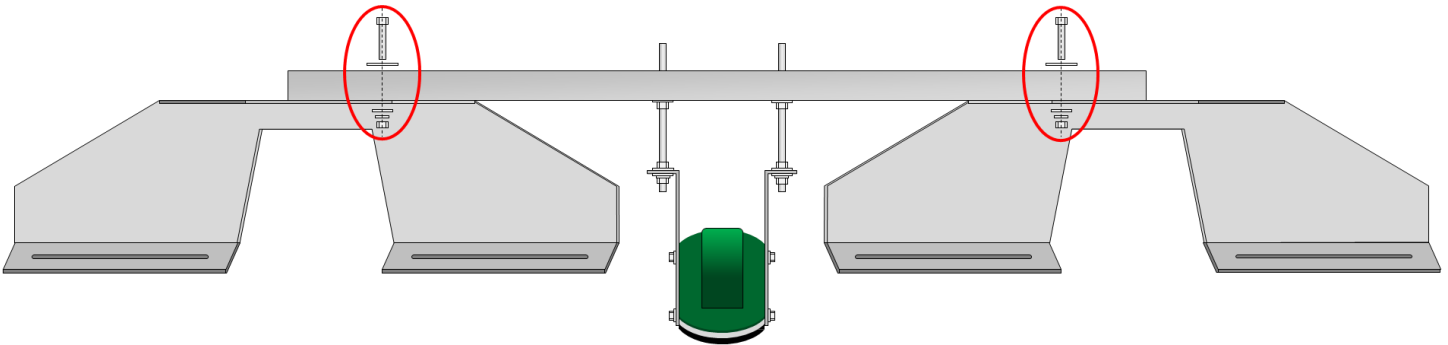
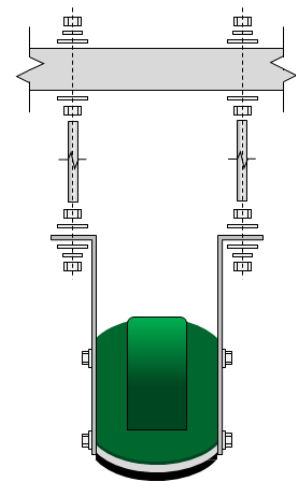
Four-Rib Roof Bracket Installation Instructions

1. Mark out the installation location on the bin. Position the sensing cable using the guidelines on the first page of these instructions. Roof brackets can reach about 25 inches between ribs so you may have to move up the roof for the bracket to fit properly.
2. Install the cable using the single cable installation guide which is included with the cable.

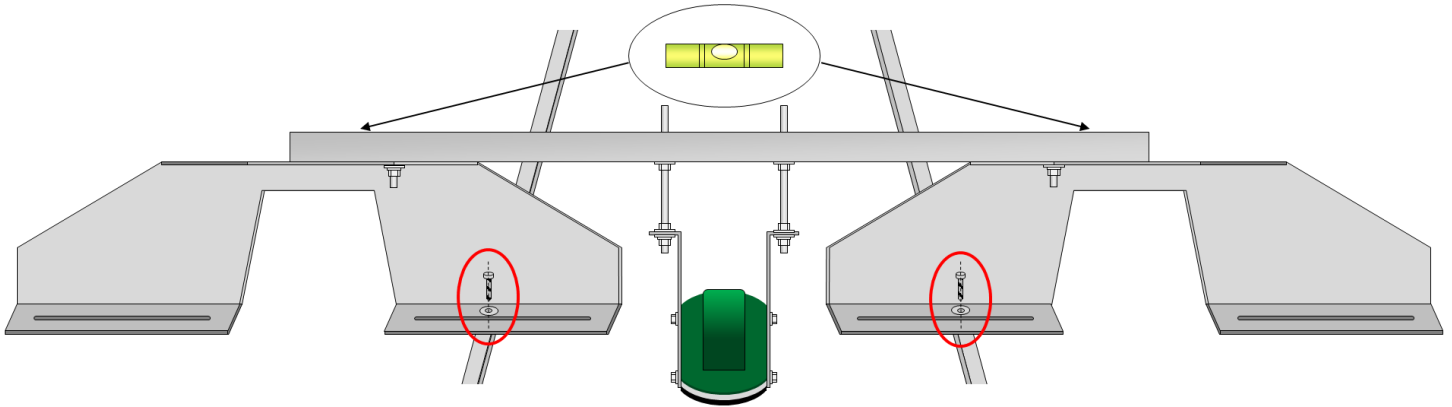


3. Once the cable is installed, attach the right and left angle brackets to the to the cable head using the four $\frac{1}{4}$ " x $\frac{3}{4}$ " grade 8 bolts and $\frac{1}{4}$ " flat washers.

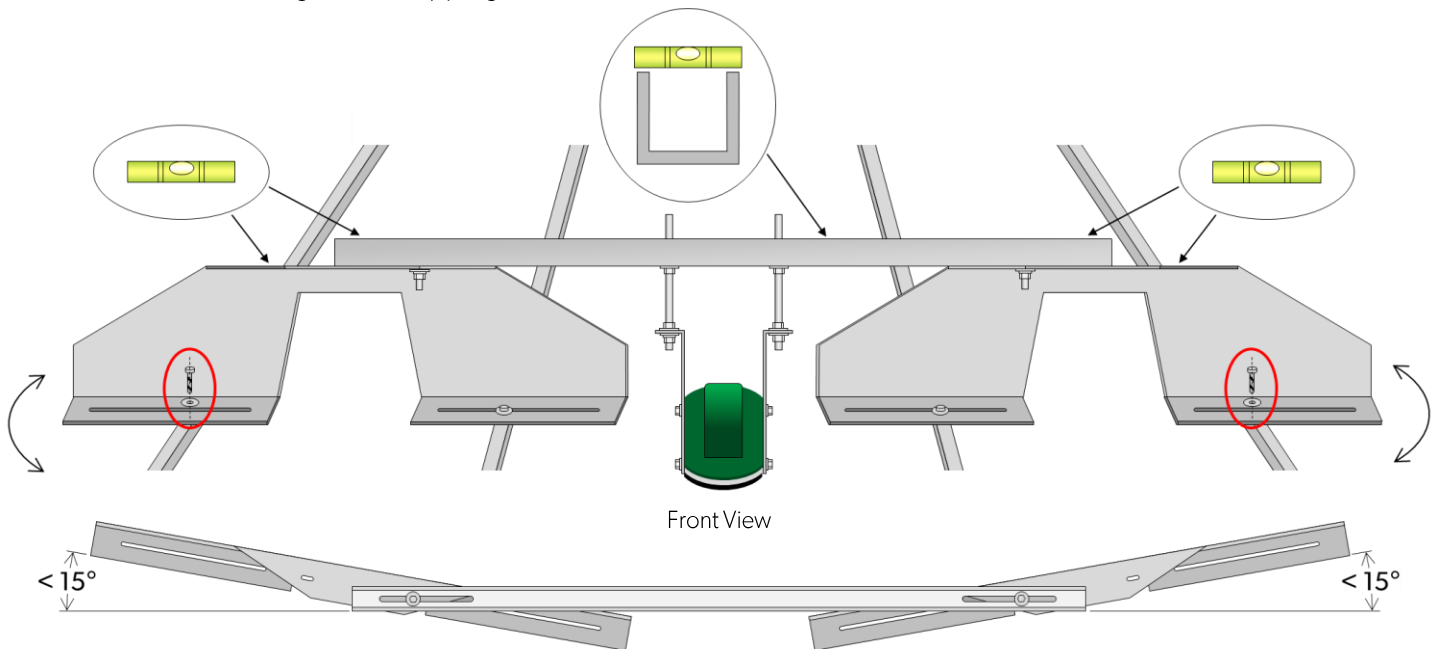
4. Attach the threaded rods to the right and left angle brackets using the supplied nuts, lock washers and flat washers. Use the remaining nuts, lock washers and flat washers to attach the C-channel to the threaded rods.
5. Loosely attach the C-channel to the slotted holes on the tops of the two roof brackets using two each of the $\frac{3}{8}$ " bolts, $\frac{3}{8}$ " fender washers, $\frac{3}{8}$ " flat washers, $\frac{3}{8}$ " lock washers, and $\frac{3}{8}$ " nuts. Tighten the nuts so that everything holds together but loose enough that you can still pivot the roof brackets.



6. Use two ¼" self-tapping screws and 5/16" fender washers to loosely secure the roof brackets to the two ribs closest to the sensing cable. Attach both self-tapping screws at the same height up the rib so that the C-channel sits level across its length.



7. Pivot the outside edges of the roof brackets until the flat surfaces on the tops of the roof brackets are level and the top of the C-channel is level. Looking down from above, there should only be a slight angle (less than 15°) between the C-channel and the roof brackets as shown in the lower diagram below. Once the roof brackets are in place, secure them to the outer two ribs with the remaining ¼" self-tapping screws and 5/16" fender washers.



8. Tighten all the screws securing the roof brackets to the ribs of the bin. Tighten the bolts securing the C-channel to the roof brackets. Use the 3/8" nuts installed on the threaded rods to adjust the gap between the C-channel and the angle brackets so that the cable head is appropriately supported.