HUGHES®
An EchoStar Company

HL1120 Non-Adjustable Mobility Mount

Assembly and Installation Manual

1044422-0001
Revision A
April 9, 2025

11717 Exploration Lane, Germantown, MD 20876

Phone (301) 428-5500

Contents

Understanding safety alert messages

Safety alert messages call attention to potential safety hazards and tell you how to avoid them. These messages are identified by the signal words DANGER, WARNING, CAUTION, or NOTICE, as illustrated below. To avoid possible property damage, personal injury, or in some cases possible death, read and comply with all safety alert messages.

Messages concerning personal injury

The signal words DANGER, WARNING, and CAUTION indicate hazards that could result in personal injury or in some cases death, as explained below. Each of these signal words indicates the severity of the potential hazard.

The signal words DANGER, WARNING, and CAUTION indicate hazards that could result in personal injury or in some cases death, as explained below. Each of these signal words indicates the severity of the potential hazard.

DANGER indicates a potentially hazardous situation which, if not avoided, *will* result in death or serious injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

Messages concerning property damage

A NOTICE concerns property damage only.

NOTICE is used for advisory messages concerning possible property damage, product damage or malfunction, data loss, or other unwanted results—but *not* personal injury.

Safety symbols

The generic safety alert symbol  calls attention to a potential personal injury hazard. It appears next to the DANGER, WARNING, and CAUTION signal words as part of the signal word label. Other symbols may appear next to DANGER, WARNING, or CAUTION to indicate a specific type of hazard (for example, fire or electric shock). If other hazard symbols are used in this document they are identified in this section.

Additional symbols

This document uses the following hazard symbols:

Indicates a safety message that concerns digging.

Indicates a safety message that concerns a potential electric shock hazard.

Indicates a safety message that concerns handling of an electrostatic-sensitive device or component.

Indicates a safety message that concerns the possibility of an explosion.

Indicates a safety message that concerns a potentially hazardous situation in which you could fall.

Indicates a safety message that concerns a possible fire hazard.

Indicates a safety message that concerns lifting a heavy object.

Indicates a safety message that concerns a hot surface.

Indicates a safety message that concerns laser radiation.

Indicates a safety message that concerns radio frequency (RF) energy.

Indicates a safety message that concerns ionizing radiation.

Indicates a safety message that concerns a heavy object that could crush you if it fell.

Indicates a safety message that concerns protective eyewear.

Indicates a safety message that concerns wearing a hard hat.

Chapter 1

Getting started

This document refers to the Hughes Dual Panel Non-Adjustable Fixed 3 Degree Vehicle Adapter Kit for HL1120. During the assembly of the HL1120 Non-Adjustable Mobility Mount, it is mandatory to use medium strength threadlocker on **ALL** fasteners. Refer to Appendix A on page 27 for the general fastener tightening torques and threadlocker strengths, unless otherwise specified in the instructions.

1.1 Required materials

Listed below are materials and tools that will be required for the assembly of the HL1120 Non-Adjustable Mobility Mount:

- Metric Allen key set
- Torque wrench
- Medium strength threadlocker
- Heat gun

Included Material & Hardware:

- (M5 x 35 button head socket screws) x 12
- (M8 x 20 socket flat head screws) x 4
- (M8 x 25 socket flat head screws) x 3
- (M8 x 30 socket flat head screws) x 2
- Right-angle coax adapter x 2
- 0.5" x 2.75" long adhesive heat shrink x 2
- Support rail x 2
- Support crossbar x 3
- Front crossbar x 1
- Mid-support rail x 1

Chapter 2

General specifications

2.1 Mounting surface

- It is recommended that the Hughes Mobility Mount be mounted directly to roof racks; see Mounting features on page 12 for mounting features.
- If mounting on flat surface, the mounting surface must be flat within 1/16" (1.6mm).
- A hole may be required near the mounting surface for routing of cables into the vehicle.

2.2 Overall dimensions

Figure 1 and Figure 2 depict the overall dimensions (in millimeters) of the HL1120 antenna with the Hughes Mobility Mount installed.

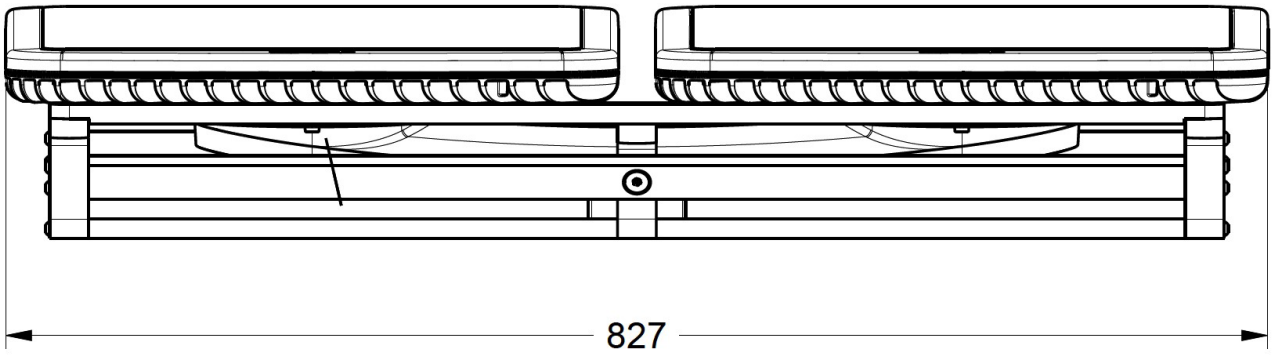


Figure 1: Front view of HL1120 antenna with Hughes Mobility Mount installed.

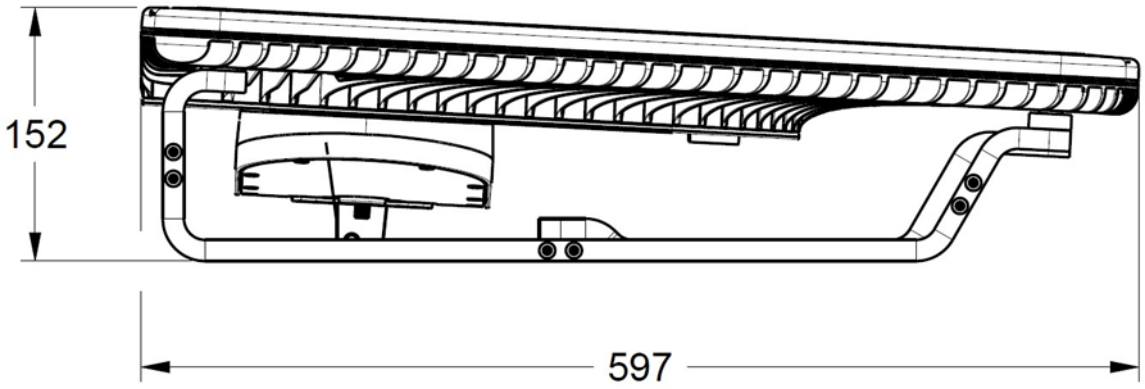


Figure 2: Side view of HL1120 antenna with Hughes Mobility Mount installed.

2.3 Mounting features

The Hughes Mobility Mount has 10 mounting slots: 4 located on each side support rail and 2 located on the middle support rail. Refer to Figure 3 for mounting slot locations and dimensions.

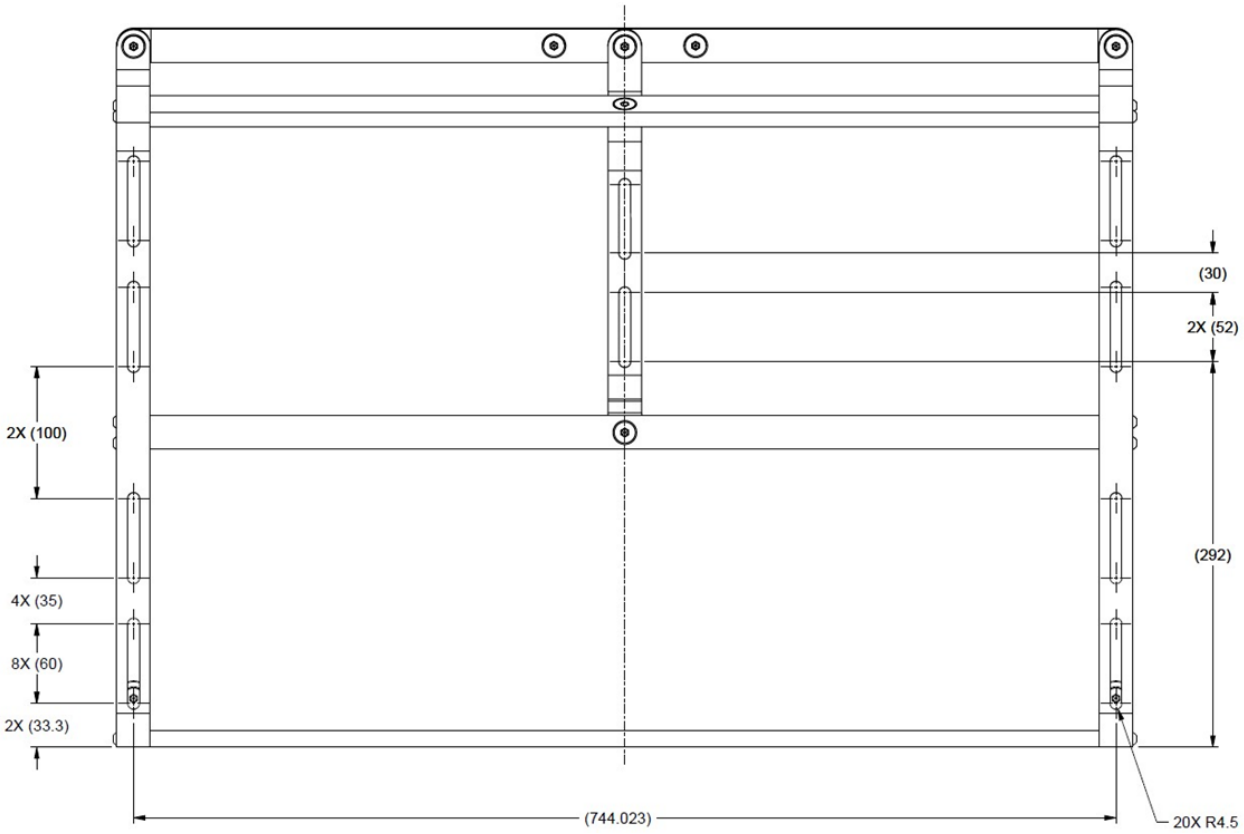


Figure 3: Mounting features of the Hughes Mobility Mount

Figure 4: Typical roof rack installation

2.4 Installation diagram

Figure 5 illustrates the assembly and installation of the Hughes Mobility Mount. Refer to this image at any point during the assembly and installation of the Hughes Mobility Mount for fastener hole locations.

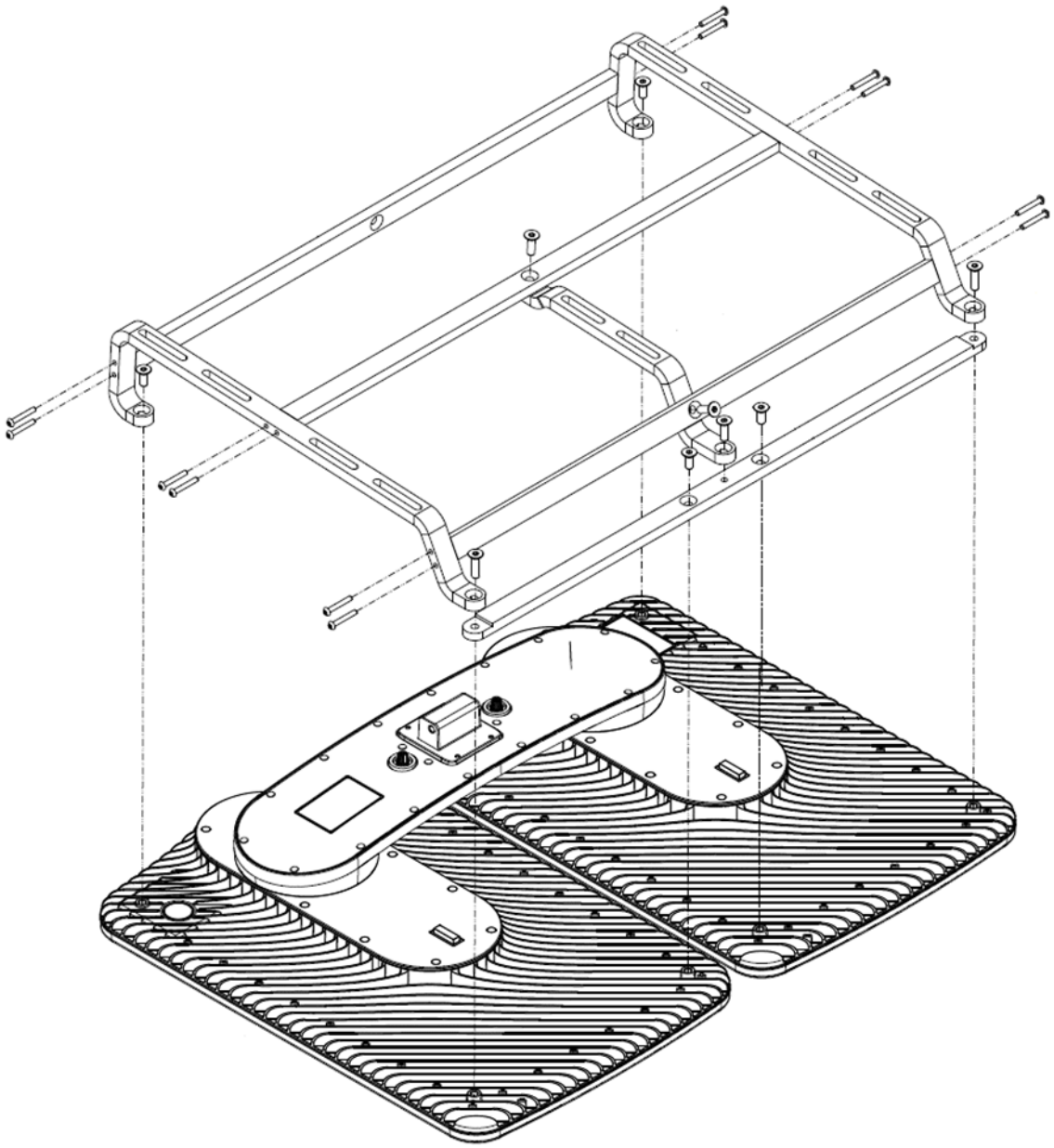
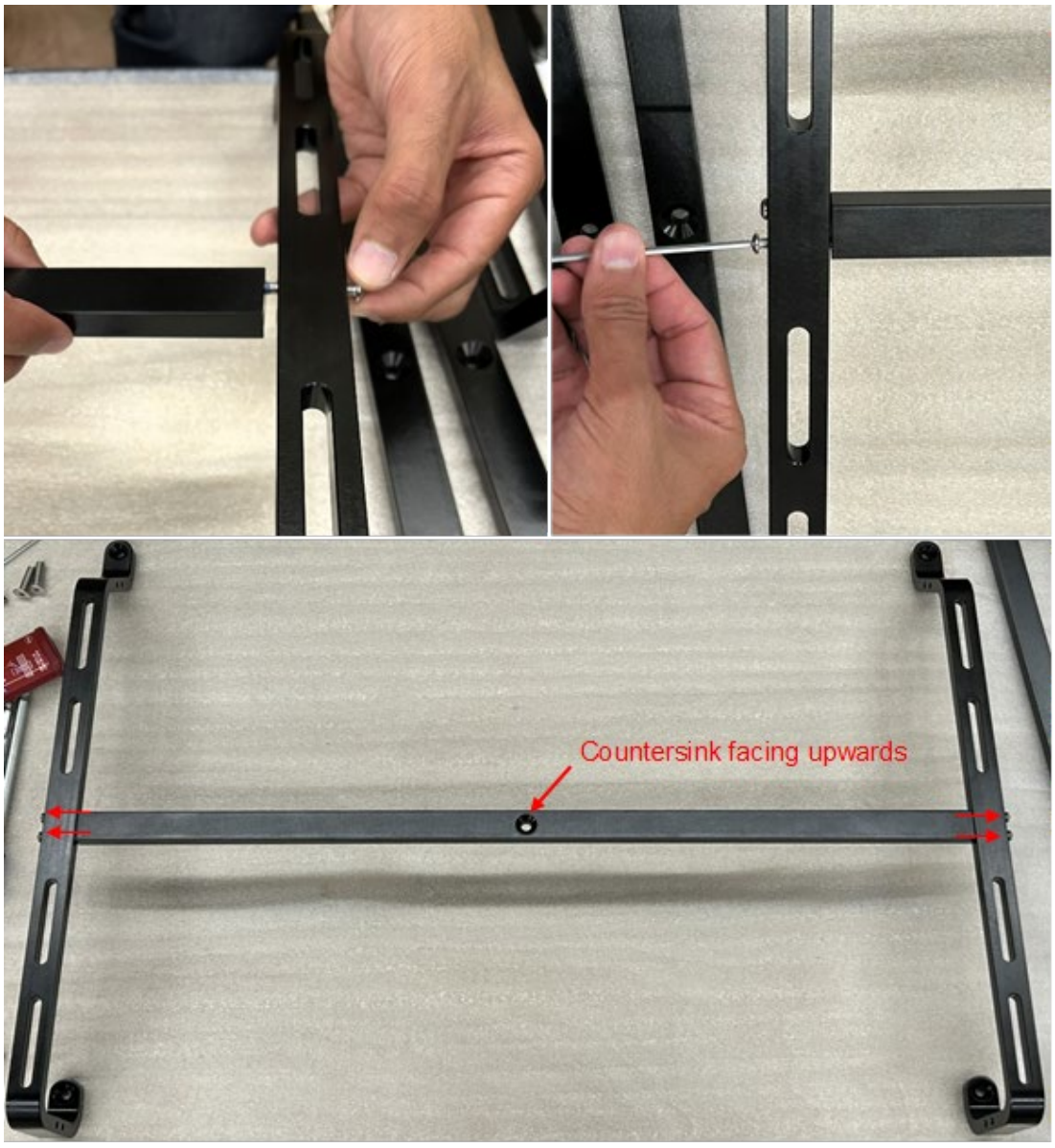


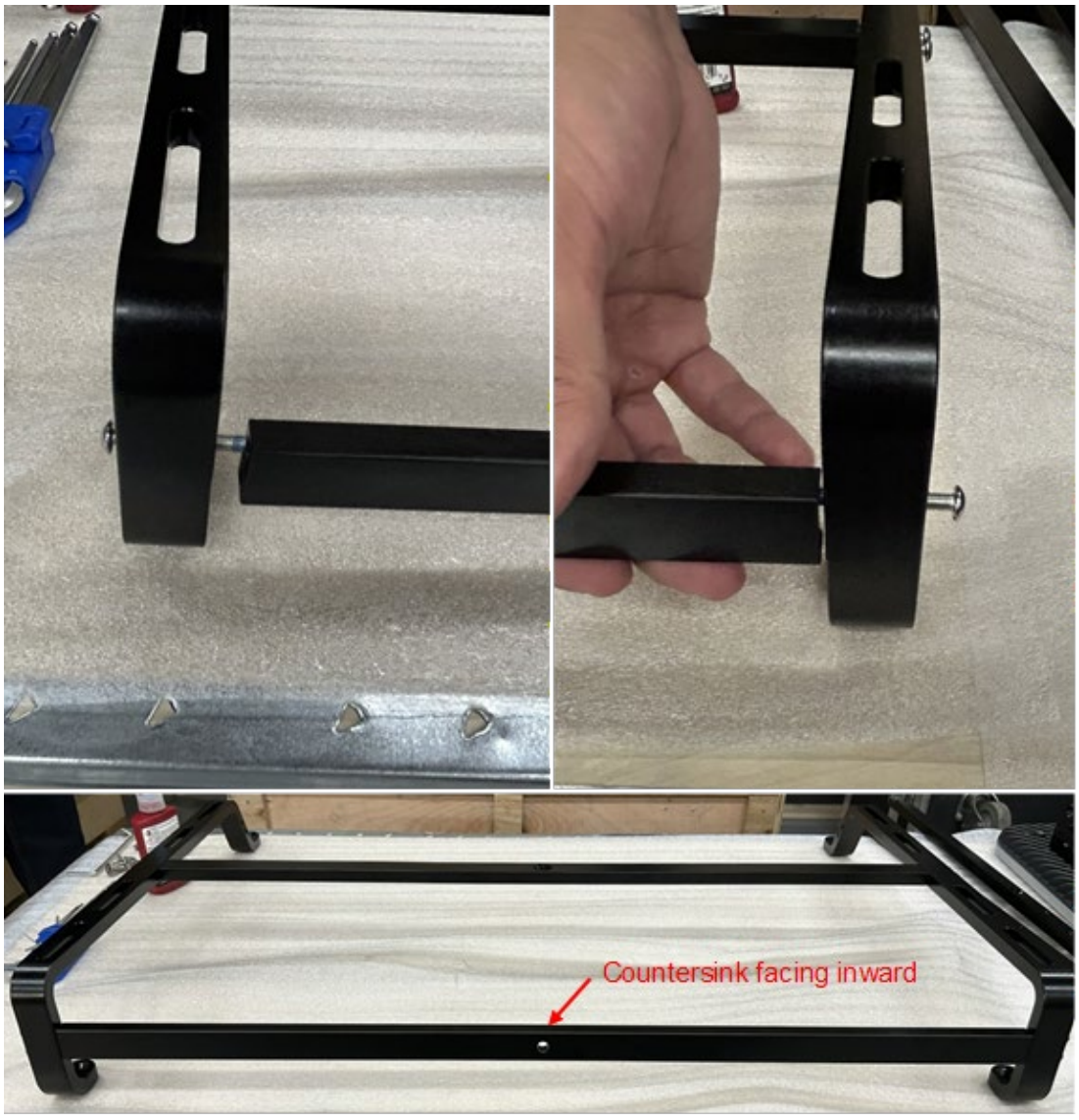
Figure 5: Hughes Mobility Mount fastener locations

All fasteners included

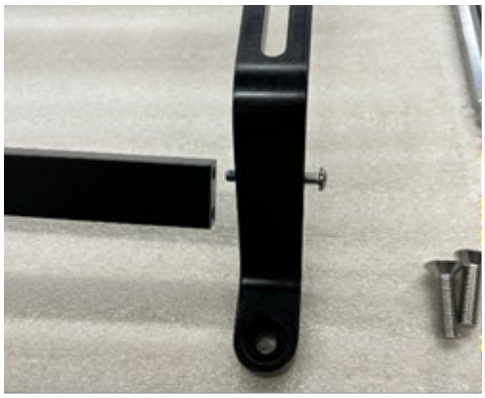
1. Install one support crossbar to center of the left and right support rails. Use four M5x35 button head, socket screws and ensure that the center counter sunk hole is facing upward. Leave screws loose for now.

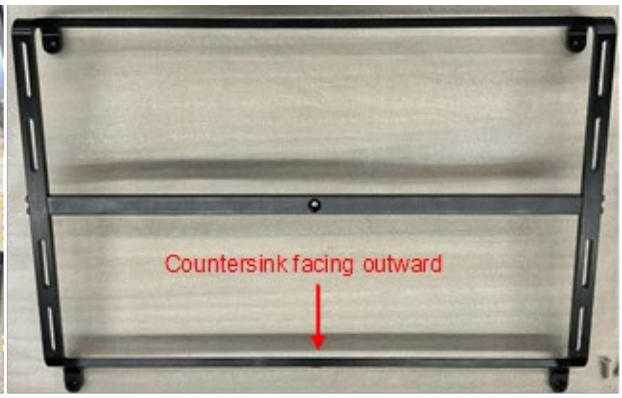


2. Install one support crossbar to the rear of the left- and right-side rails. Use four M5x35 button head, socket screws, ensuring the center counter sunk hole is facing inward. Leave screws loose for now.

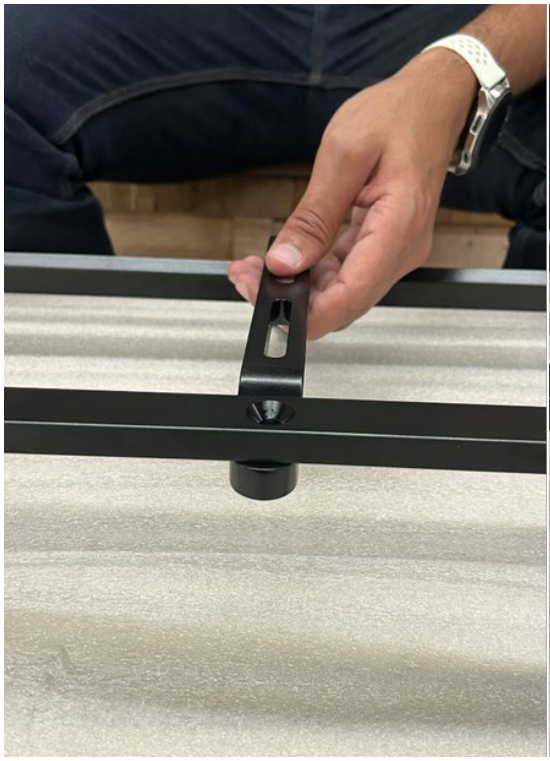


3. Install one support crossbar to the front of the left- and right-side rails using four M5x35 button head, socket screws. Ensure that the center counter sunk hole is facing outward. Leave screws loose for now.





4. Install the mid-support rail to the mid-section support crossbar using a M8x25 socket, flat head screw. Leave screw loose for now.



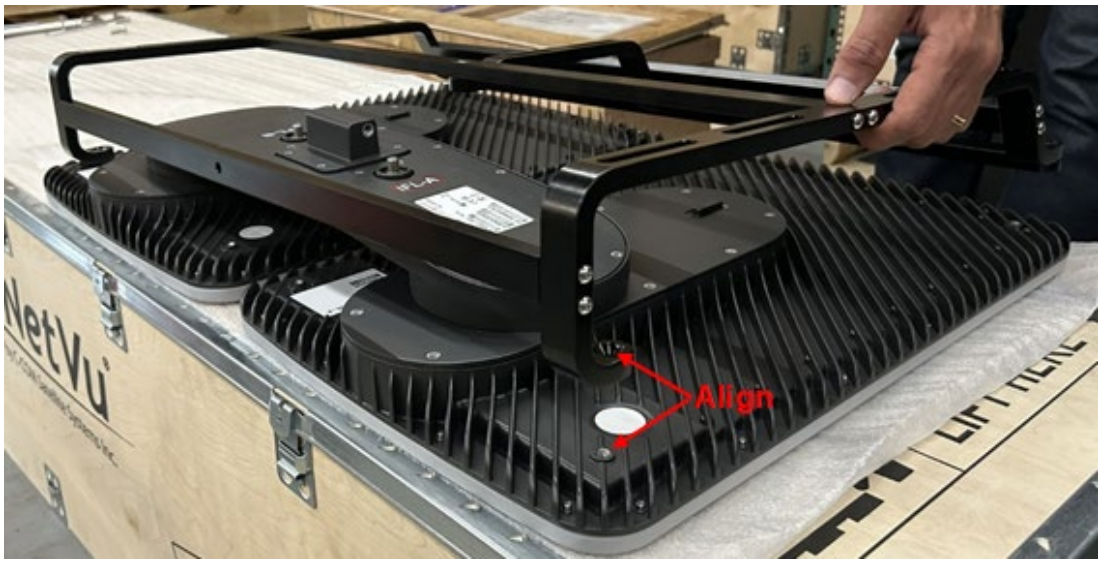
5. Install the mid-support rail to the front support crossbar using a M8x25 socket, flat head screw, leaving the screw loose for now.

6. Install the front crossbar to the mid-support rail, ensuring that the two center countersunk holes face upward. Only install the center M8x25 socket, flat head screw.

7. Keep screws loose until the mount has been installed to panels. The Non-Adjustable Mobility Mount is now fully assembled.

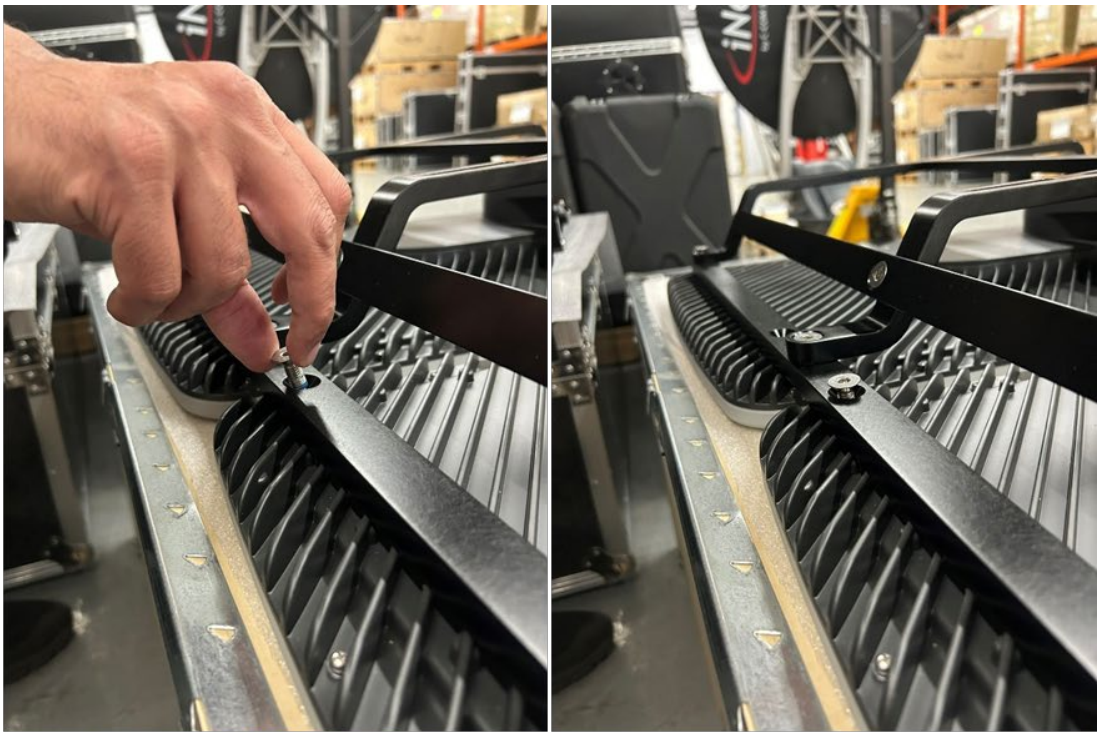
Mobility Mount installation

1. Align the Mobility Mount with the back of the panels as shown in the image below.

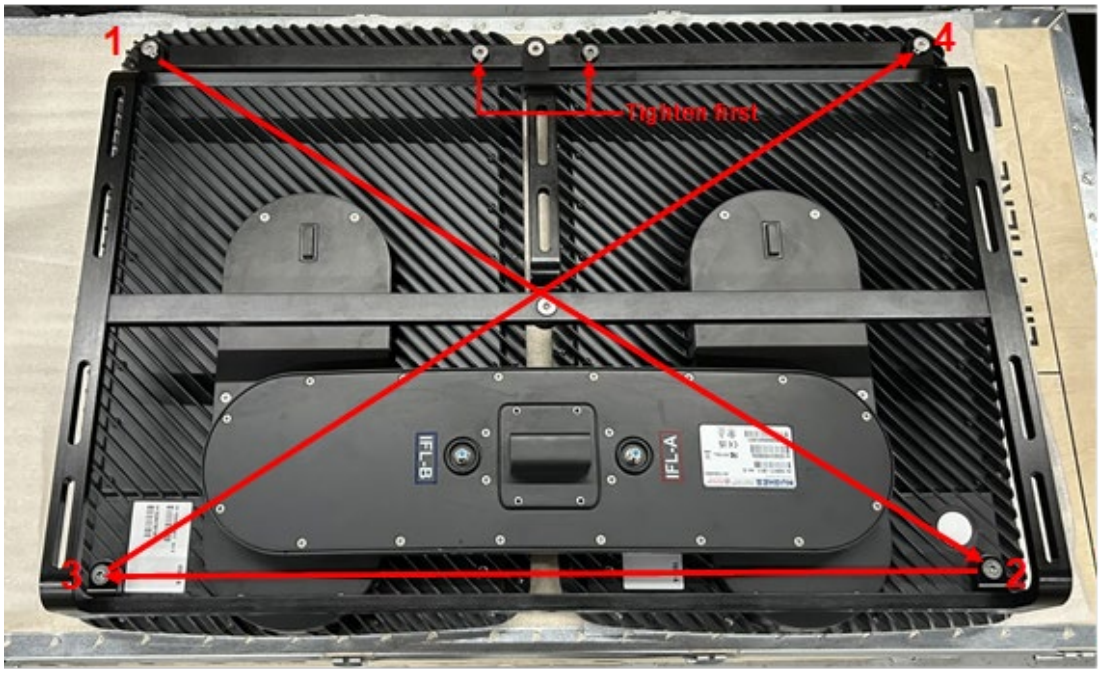


2. Install two M8x30 socket, flat head screws on the front corners of the mount assembly. Leave the screws loose for now.

3. Install the remaining four M8x20 socket, flat head screws in the mount. Leave screws loose for now. See images below for screw hole locations.



4. First, tighten the two front M8 screws; then, tighten the four M8 corner screws in a cross pattern. Ensure all screws are tightened to specified torque.



5. Tighten all loose screws from assembly and installation of the Mobility Mount.

6. The Non-Adjustable Mobility Mount is now fully installed.

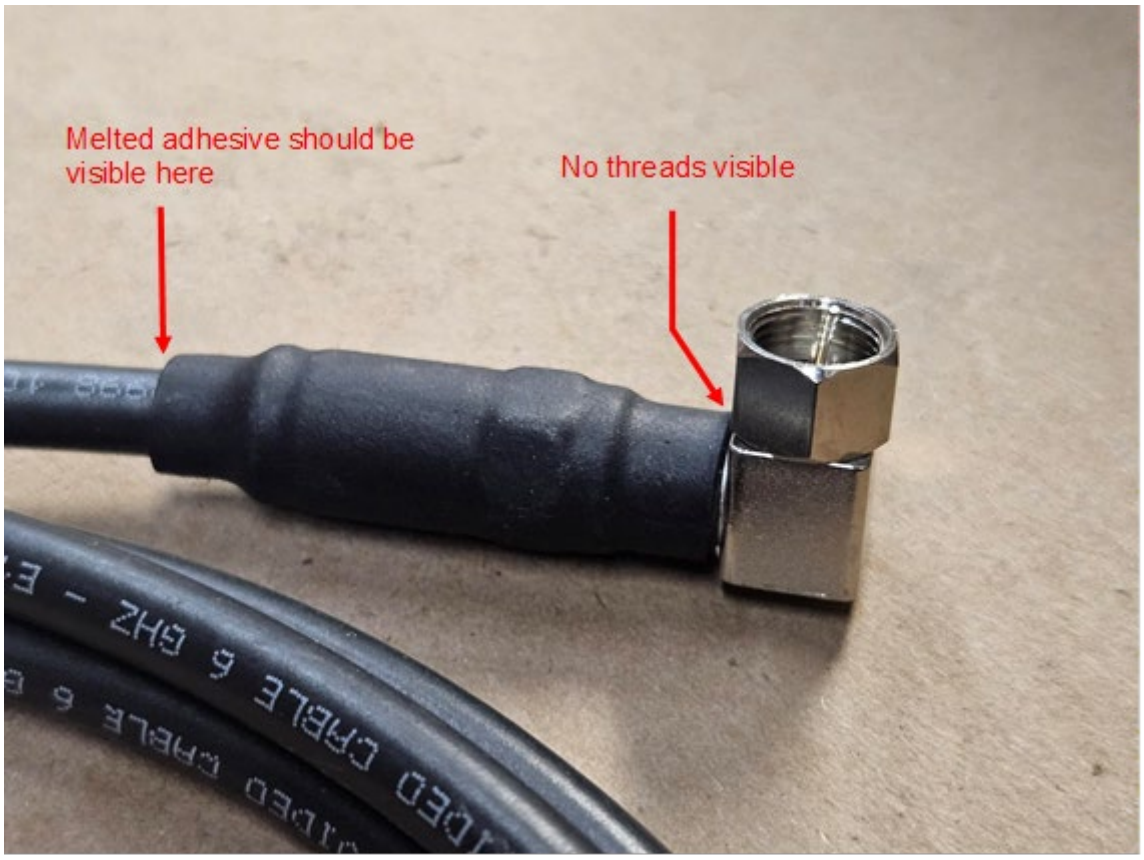
Chapter 5

Installing right-angle coax adapters

1. Acquire the two right angle coax adapters and the two pieces of heat shrink included in the hardware kit.

2. Slide one piece of heat shrink onto the coax cable; then, install a right-angle coax adapter onto the end of the same cable.

3. Slide the heat shrink back up the coax cable so that there are no threads visible on the right-angle coax adapter. Using a heat gun, heat the heat shrink sufficiently so that the melted adhesive is visible at the base of the piece of heat shrink.



4. Repeat steps 2 and 3 for the second coax cable.

Appendix A

Fastener torque tables

This appendix lists torque values for the HL1120 Non-Adjustable Mobility Mount.

A.1 Tightening torque for stainless steel metric fasteners

Tightening torque values for stainless steel metric fasteners are listed in the tables below. This applies for A2/A4-70 grade stainless steel with plain or non-lubricated threads (μ_{total} = 0.20).

Note: Tightening torque values and threadlocker strengths apply for all fasteners unless otherwise specified in the manufacturing assembly procedure.

Table 1: Socket head (ISO 4762, DIN 912)/hex head (ISO 4014/4017, DIN 931/933)

Thread diameter	Torque (Nm)	Threadlocker strength
M3	0.9	Low
M4	2.6	Low
M5	5.1	Medium
M6	8.7	Medium
M8	22	Medium
M10	43	Medium
M12	75	Medium

Table 2: Socket button head (ISO 7380)/socket flat head (DIN 7991)/socket low head (DIN 7984)

Thread diameter	Torque (Nm)	Threadlocker strength
M3	0.6	Low
M4	1.4	Low
M5	2.5	Low
M6	5.5	Medium
M8	10	Medium
M10	24	Medium
M12	39	Medium

Table 3: Socket set screw (ISO 4026-4029, DIN 913-916)

Thread diameter	Torque (Nm)	Threadlocker strength
M3	0.2	Low
M4	0.5	Low
M5	1.5	Low
M6	2.5	Low
M8	5	Medium
M10	10	Medium
M12	20	Medium