



Top of Pole Mount

# Installation Manual

**2016 Edition** v1.01

**For models:**

UNI-TP/06  
UNI-TP/06LL  
UNI-TP/08  
UNI-TP/08LL  
UNI-TP/10  
UNI-TP/10LL  
UNI-TP/12  
UNI-TP/12LL

UNI-TP02-MAN



## Table of Contents

- 1 Introduction
- 1 Customer Support
- 2 Project Essentials
- 3 Assembly: Steps 1-3
- 4 Assembly: Steps 4-6
- 5 Assembly: Step 7
- 6 Installer Responsibility
- 6 Warranty Information

## Introduction

The Top of Pole Mount is a very sturdy and universal pole mounting solution for small area solar photovoltaic (PV) needs. With its user-adjustable angle settings, the Top of Pole Mount can support installations in a wide range of locations. Panel and pole support varies with the model.

## Customer Support

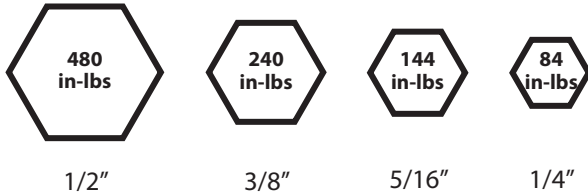
Tamarack Solar makes every effort to ensure your mounting kit is easy to install. If you need assistance at any point in your installation or have suggestions on how we can improve your experience, call customer support at 1-800-819-7236 or email us at [info@tamaracksolar.com](mailto:info@tamaracksolar.com).





## Tools Required

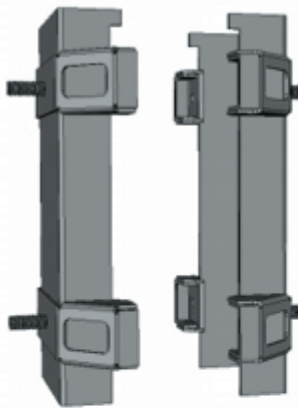
A wrench that supports the following size hex heads:



## Components List

The following parts are used across various models of our Top of Pole mount and ship with necessary hardware:

Brace Assembly



Tilt Plates



Cross Rails



Channel Rails



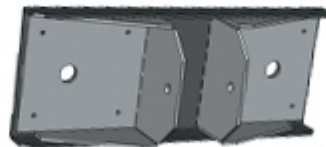
Connectors\*



1/2-13 U-Bolt\*



Lower Knee Brace\*



Upper Knee Brace Bracket\*



Upper Knee Brace Rail\*



Inner/Outer Knee Brace Channels\*



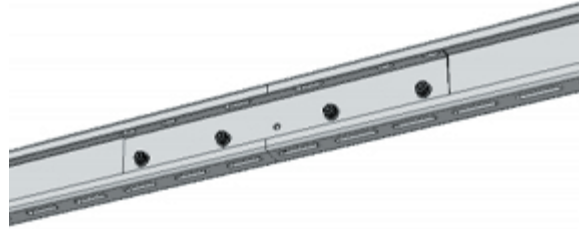
*\*Component only needed for models: 10, 10LL, 12, and 12LL.*



## Step 1. Connecting Channel Rails

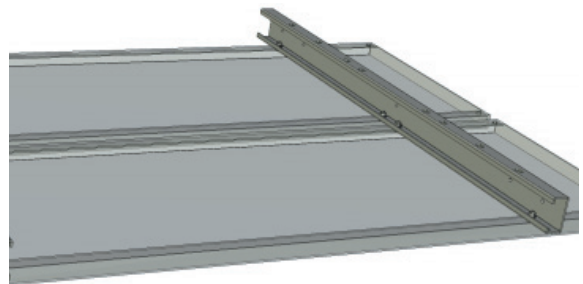
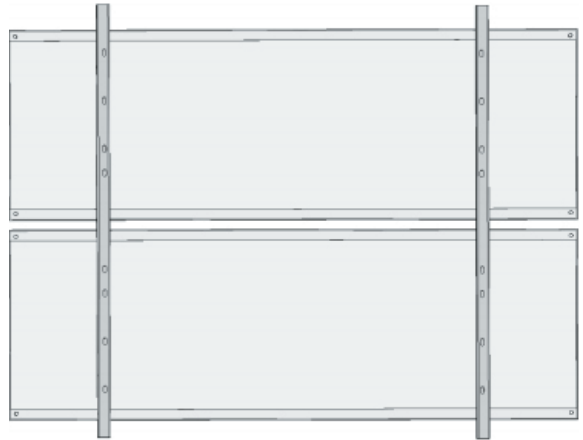
Only for UNI-TP models: 10, 10LL, 12, 12LL

- Lay two channel rails end to end.
- Using a connector, bolt the channel rails together. Tighten the 1/4-20 x 3/4" hardware (hex bolt, flat washer, lock washer, and hex nut) to 84 in-lbs (dry).
- Repeat with the remaining set of channel rails.



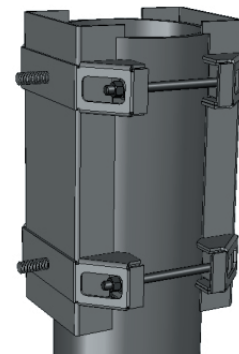
## Step 2. Attach Channel Rails to Module(s)

- Lay the modules face down on a protected surface in the suitable orientation. Leave at least 1/4" between panels.
- Lay the channel rails on the back of the modules with the evenly-spaced holes down, so the flat side of the rails are facing towards the outside edges of the panels.
- Secure the rails with 1/4-20 x 3/4" hardware (hex bolt, flat washer, lock washer, and hex nut) in each of the PV mounting holes. Tighten the bolts to 84 in-lbs (dry).
- Repeat steps, attaching the remaining PV modules to the remaining channel rails.



## Step 3. Attach Brace Assembly to Pole

- Place the brace assembly onto the pole so the "lip" catches the top of the pole.
- Install the 3/8-16 x 6" hardware (hex bolt, flat washer, lock washer, and hex nut) as shown.
- Tighten the nuts evenly, making sure that both hex bolts are tightened the same amount so the distance between braces is the same on the front and the back.
- Tighten the 3/8" hex bolts to 240 in-lbs (dry).



Includes Large Pole Bracket Kit with  
3/8-16 x 5.5" Hex Bolt

### Step 4. Attach Tilt Plate

- A. Place the tilt plates on the brace assembly as shown. Use a 1/2" flat washers, lock washer and hex nut on each stud, and finger-tighten.



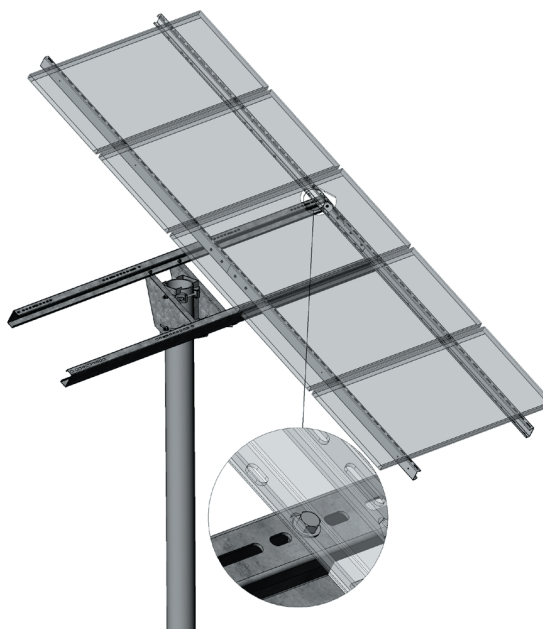
### Step 5. Attach Cross Rail

- A. Place the cross rails on the tilt plates with the open sides facing each other and attach using 3/8-16 x 1" hardware (hex bolt, flat washers, lock washer, and hex nut).
- B. Tighten the bolts to 240 in-lbs (dry).



### Step 6. Attach PV Assembly(s)

- A. Lift the PV array assembly onto the cross rails and attach using 3/8-16 x 1" hardware (hex bolt, flat washers, lock washer, and hex nut).
- B. Tighten the bolts to 240 in-lbs (dry).
- C. Adjust the tilt of the panel, then tighten then tighten the tilt plate. 480 in-lbs (dry) for 1/2" nuts.

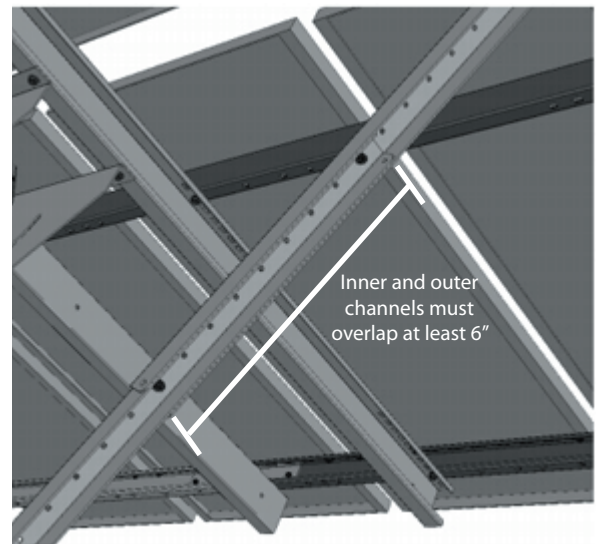
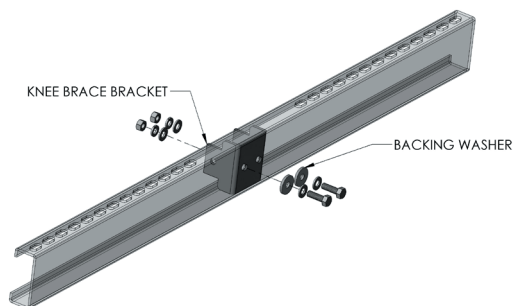


## Step 7. Mounting the Knee Brace

Only for UNI-TP models: 10LL, 12, 12LL

- A. Attach the lower knee brace to the pole with the U-bolt. Adjust knee braces to meet necessary tilt angle for assembly. Loosely tighten U-bolt hardware.
- B. Bolt the knee brace bracket to the upper knee brace rail using 5/16 x 1" hardware (hex bolt, flat washers, alum backing washer, lock washer, and hex nut).
- C. Attach the upper knee brace rail to the ends of the PV module channel rails using 3/8" x 1" hardware (hex bolt, flat washer, lock washer, and hex nut). Tighten to 240 in-lbs.
- D. Bolt the inner (narrower) knee brace channel to the lower knee brace using the supplied 1/4" x 3/4" hardware.
- E. Bolt the outer (wider) knee brace channel to the upper knee brace bracket, using the supplied 5/16" x 3" bolt. Tighten hardware to 144 in-lbs. Do not deform channel.
- F. Bolt the inner and outer knee brace channels together by lining up the appropriate holes and using two sets of 1/4" x 3/4" hardware. Knee brace channels should overlap at least 6". Tighten to 84 in-lbs.

Move lower knee brace slightly as required to align brace holes and minimum 6" overlap, then tighten 1/2-13 U-Bolt hardware to 480 in-lbs. Do not deform lower brace assembly.





## Installer Responsibility

The installer is solely responsible for:

- i. Complying with all applicable local or national building codes, including any that may supersede this manual;
- ii. Ensuring that Tamarack Solar and other products are appropriate for the particular installation and the installation environment;
- iii. Using only Tamarack Solar parts and installer-supplied parts as specified by Tamarack Solar. Substitution parts may void the warranty;
- iv. Ensuring safe installation of all electrical aspects of the PV array; and
- v. Ensuring correct and appropriate design parameters are used in determining the design loading used for the specific

## Warranty Information

Tamarack Solar warrants each Mounting Structure to be free from defects in materials and workmanship for ten (10) years from the date of first purchase ("Warranty Period"), when installed properly and used for the purpose for which it is designed, except for the finish, which shall be free from visible peeling, or cracking or chalking under normal atmospheric conditions for a period of three (3) years, from the earlier of 1) the date the installation of the Product is completed, or 2) 30 days after the purchase of the Product by the original Purchaser ("Finish Warranty"). The Finish Warranty does not apply to any foreign residue deposited on the finish. All installations in corrosive atmospheric conditions are excluded. The Finish Warranty is VOID if the practices specified by AAMA 609 & 610-02 – "Cleaning and Maintenance for Architecturally Finished Aluminum" ([www.aamanet.org](http://www.aamanet.org)) are not followed by Purchaser for Tamarack Solar's aluminum based products.

The warranty covers the replacement cost of parts to repair the product to proper working condition. Transportation and incidental costs associated with warranty items are not reimbursable. The warranty does not cover normal wear, or damage resulting from misuse, abuse, improper installation, negligence, or accident. The warranty does not cover any defect that has not been reported in writing to Tamarack Solar within ten (10) days after discovery of such defect. Furthermore, it does not cover units that have been altered, modified or repaired without written authorization from the manufacturer or its authorized representative, or units used in a manner or for a purpose other than that specified by the manufacturer. Tamarack Solar's entire liability and Purchaser exclusive remedy, whether in contract, tort or otherwise, for any claim related to or arising out of breach of the warranty covering the Mounting Structures shall be correction of defects by repair, replacement, or credit, at Tamarack Solar's discretion. Refurbished Mounting Structures may be used to repair or replace the Mounting Structures.

Tamarack Solar shall have no liability for any injuries or damages to persons or property resulting from any cause, whatsoever, or any claims or demands brought against Tamarack Solar by Purchaser, any employee of Purchaser, client of Purchaser, end-user of the Product or other party, even if Tamarack Solar has been advised of the possibility of such claims or demands (collectively, "Third Party Claims"). This limitation applies to all materials provided by Tamarack Solar during and after the Warranty Period.



## Foundation Recommendation Addendum

**Note:** The suggestions below are recommendations only. It is the installer's responsibility to validate foundation parameters prior to installation, as a local geotechnical report may be required to assess ground conditions. We recommend consulting with a local engineer familiar with local regulations and build site requirements, including soil conditions, terrain and load criteria (wind, snow, seismic). All of these parameters may impact foundation requirements.

### Mounting Pole Guidelines

Table 1

Part Number	Pipe required
<b>Small Top of Pole Mounts</b>	
UNI-TP/02	4" Nominal Pipe Size, Schedule 40
UNI-TP/02A	4" Nominal Pipe Size, Schedule 40
UNI-TP/03	4" Nominal Pipe Size, Schedule 40
UNI-TP/04	4" Nominal Pipe Size, Schedule 40
UNI-TP/04A	4" Nominal Pipe Size, Schedule 40
<b>Large Top of Pole Mounts</b>	
UNI-TP/06	6" Nominal Pipe Size, Schedule 40
UNI-TP/06LL	6" Nominal Pipe Size, Schedule 40
UNI-TP/08	6" Nominal Pipe Size, Schedule 40
UNI-TP/08LL	6" Nominal Pipe Size, Schedule 40
UNI-TP/10	6" Nominal Pipe Size, Schedule 40
UNI-TP/10LL	6" Nominal Pipe Size, Schedule 40
UNI-TP/12	6" Nominal Pipe Size, Schedule 40
UNI-TP/12LL	6" Nominal Pipe Size, Schedule 40

**Note:** All Tamarack Top of Pole Mounts are engineered for a maximum height of 6' above grade

### Foundation Hole Guidelines

Table 2

Module Area	Max. Wind Speed	Min. Hole Diameter	Min. Hole Depth	Min. Pole Depth
20 Sq Feet	90 MPH	15"	46"	40"
30 Sq Feet	90 MPH	18"	51"	45"
40 Sq Feet	90 MPH	18"	60"	54"
50 Sq Feet	90 MPH	18"	62"	56"
60 Sq Feet	90 MPH	24"	52"	46"
70 Sq Feet	90 MPH	24"	60"	54"
80 Sq Feet	90 MPH	24"	66"	60"
90 Sq Feet	90 MPH	24"	74"	68"
105 Sq Feet	90 MPH	24"	82"	76"



### Installation Recommendations

- Auger hole to minimum depth shown in Table 2.
- 6" of hole should be filled with crushed rock or a blocking. This will prevent the pipe from touching the base of the hole, insuring complete encapsulation of the pipe when concrete is poured, as well as allowing for water drainage. See Fig. 1.
- Pipe should be installed vertically no matter the slope of the install site.
- Make arrangements to prevent the pipe from twisting prior to pouring concrete.
- Pipe should be braced to remain plumb until concrete has cured (at least 24 hours).

**Fig. 1: Top of Pole Foundation Guideline Diagram**

