



SOLAR TRACKER WIRE MANAGEMENT GUIDE

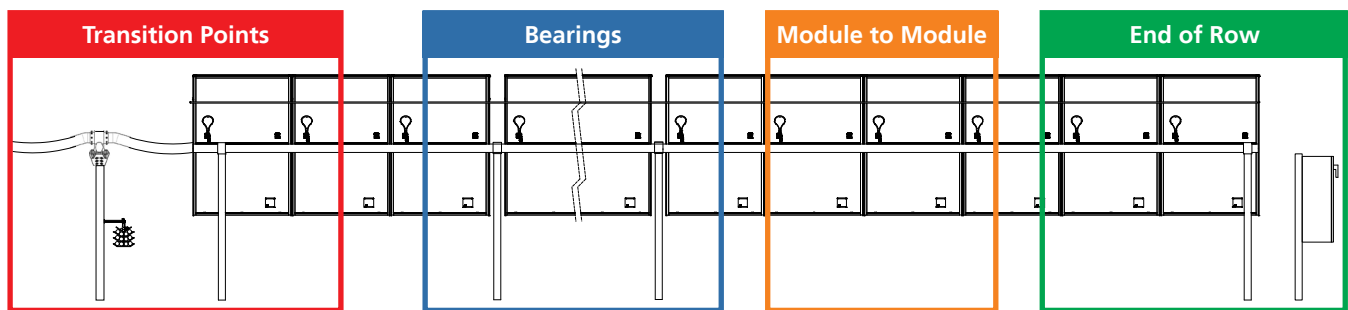
For Nextracker Systems
with First Solar Series 6 Modules

▶ Intro

While managing wire and cable for First Solar Series 6 modules is relatively straightforward, this wire management guide will help designers and installers avoid common pitfalls of utility-scale wire management.

With First Solar Series 6 modules and a Nextracker system, module-level wiring, or string wiring, is typically attached to the module itself. With the Series 6 module, shorter leads and split junction boxes limit the need for those wires to be managed. Yet, Series 6 – with its additional wire harnesses – presents a challenge that does not exist with mono-crystalline modules. The Nextracker MIBs provide minimal attachment options for running home runs along the torque tube.

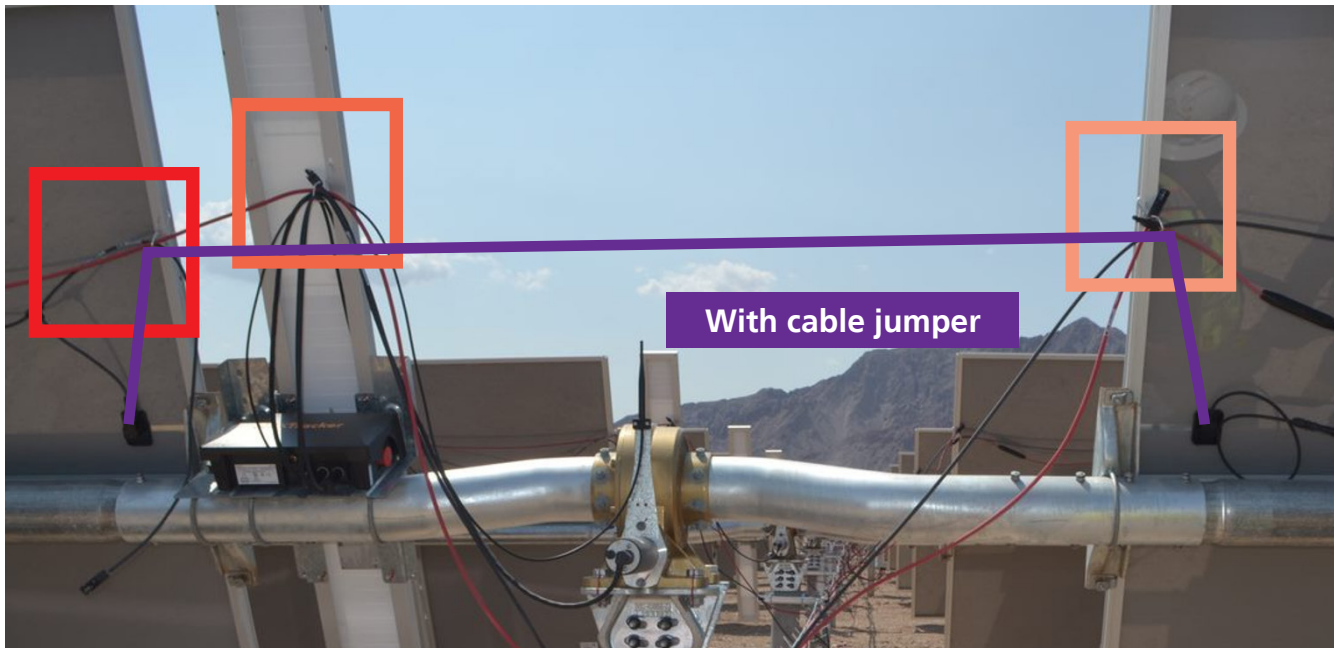
This guide presents several guidelines and techniques. Also covered are tips to manage cables between inline trackers and from trackers to fixed structures, such as posts. Not discussed is row-to-row cable management, as that is dependent on many factors (geology, climate, access considerations, owner preference, etc.) and not within the scope of this guide.



1 Drive Train / Above-Ground System

The Nexttracker drive train requires well-planned wire management in specific areas. The motor and drivetrain provide many pinch points that must be avoided for the continued health of the system. With the combination of First Solar's Series 6 modules and the tracker, wire management holes on the module provide the perfect routing path for an assortment of HellermannTyton solutions.

First Solar's module holes keep wires an adequate distance from the drive train to avoid potential failure points. If the wires must run along the torque tube, choose mounting parts carefully. Using metal or coated metal clamps, strut straps and similar products can be dangerous in these areas, as tracker movement and wind can cause certain wire management devices to quickly abrade wire jackets. Use a permanently non-conductive product that will allow the wires to move and hang with sufficient slack and not damage the cabling.



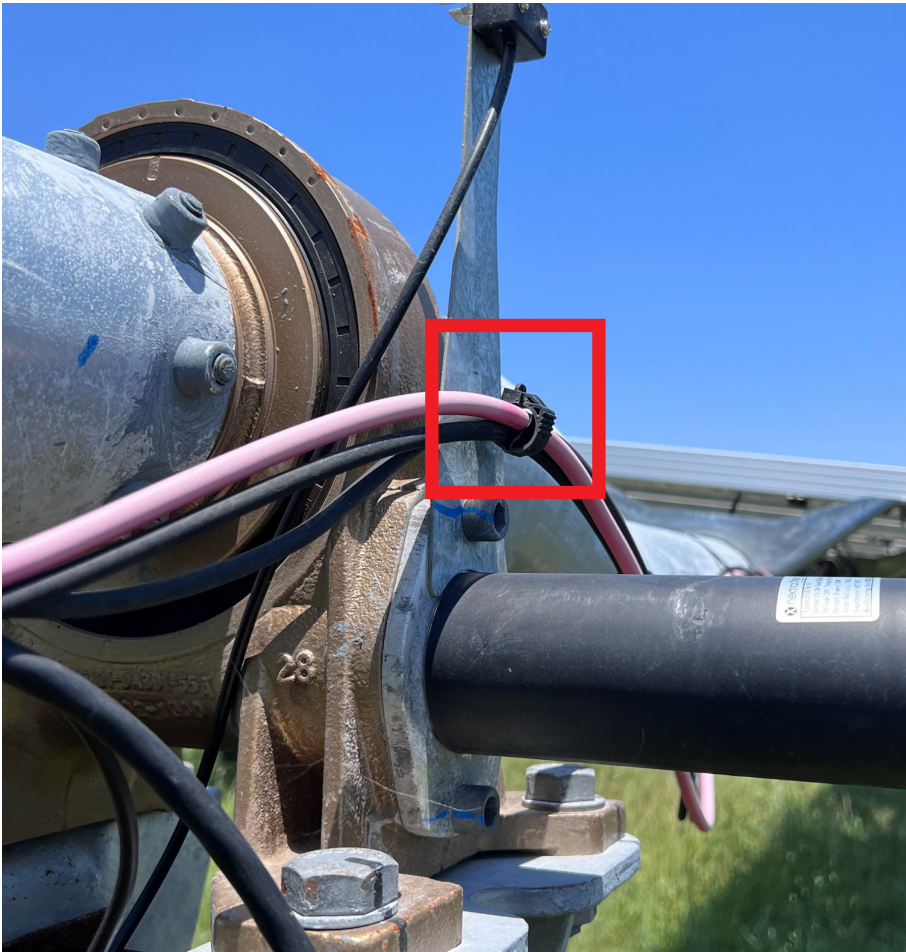
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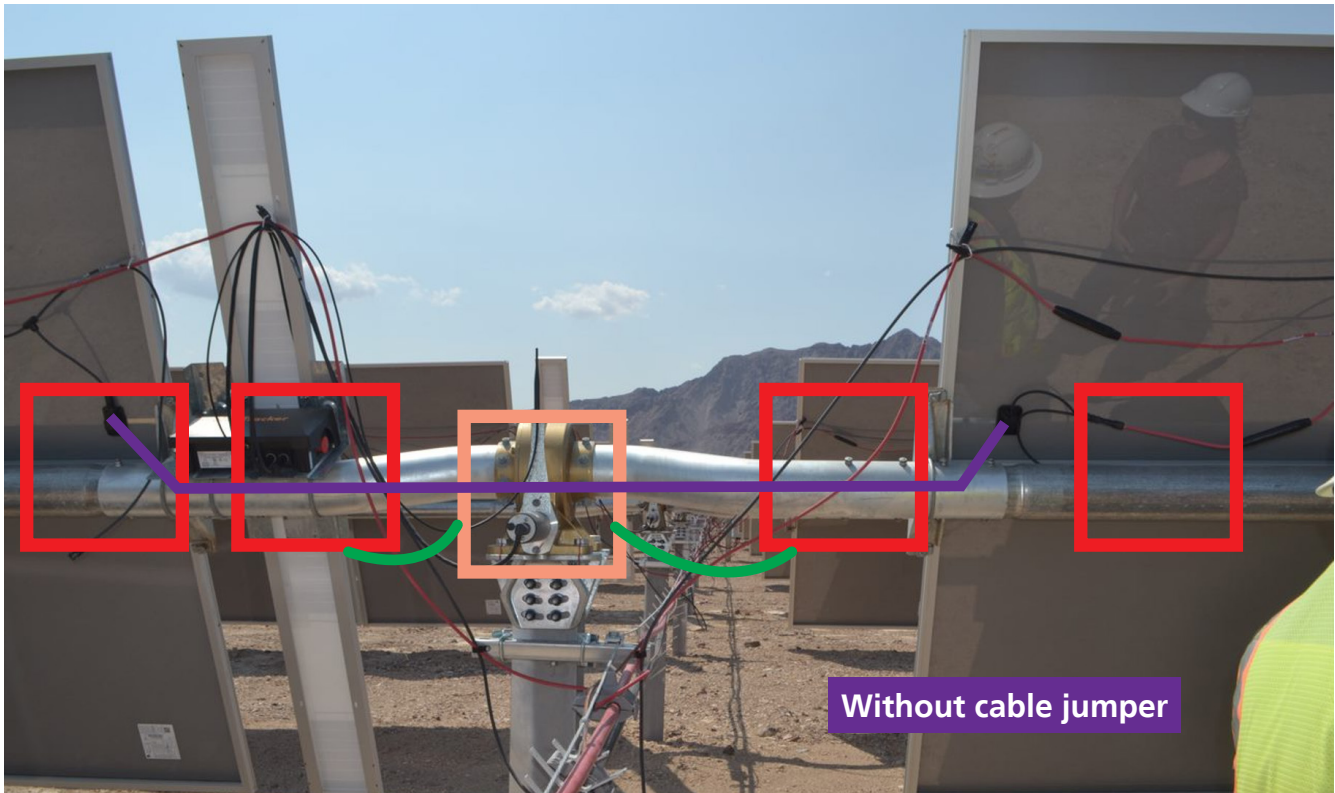
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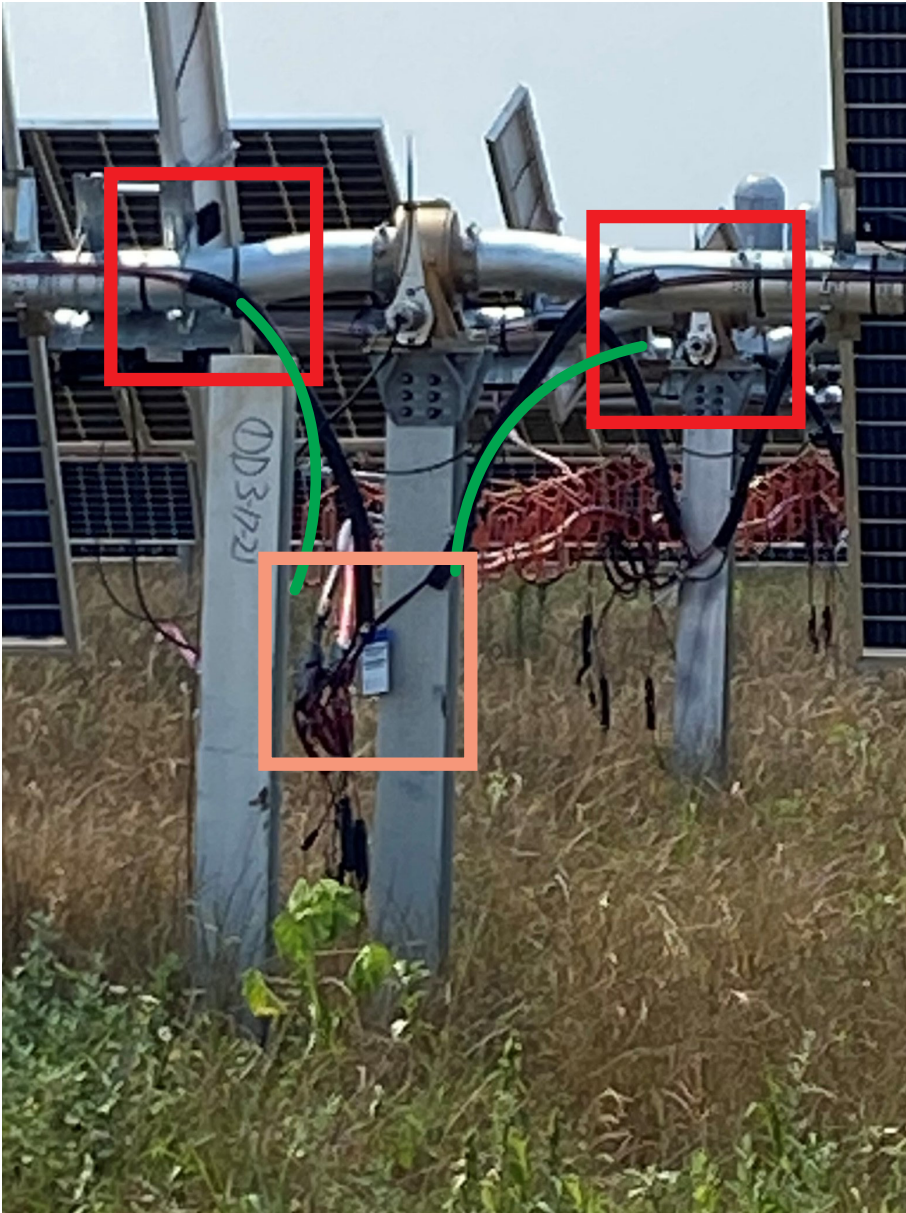


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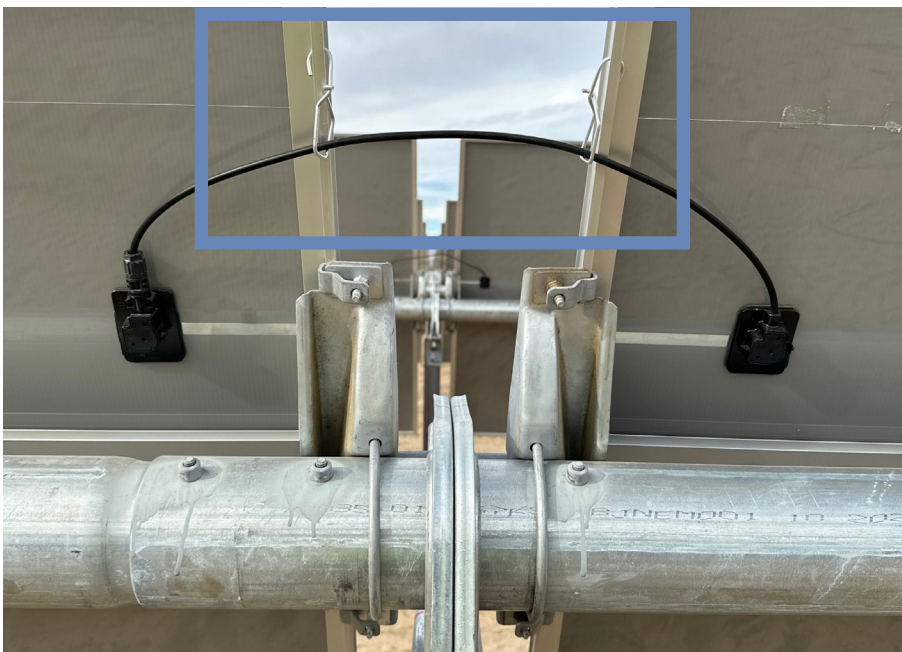
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2 Bearings

The Nexttracker BHA is a larger structure that provides a greater risk of pinch points for the home runs and the module leads. For Series 6 modules, routing the module leads around the bearings is the biggest concern. There is a lack of mounting hole options on the module closer to the torque tube, leaving few options for attaching the lead wires. With a Nexttracker Horizon / Series 6 module designed system, it is advised to route the homeruns on the module to keep the wires away from the bearings and center torque tube.

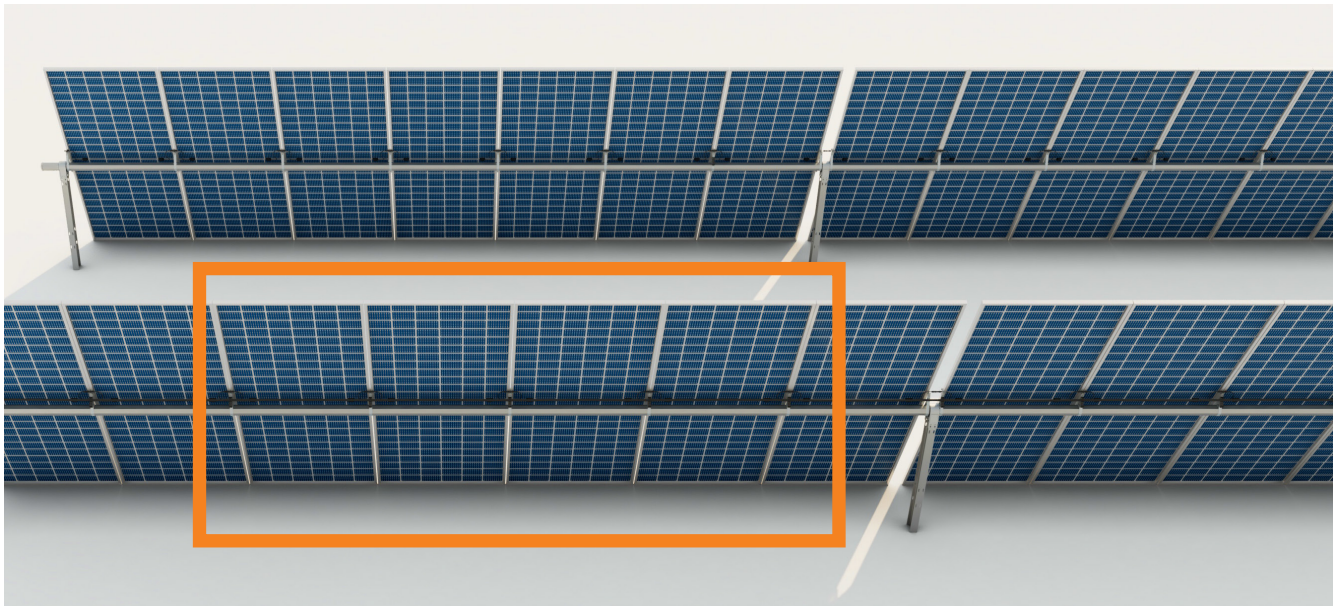


3 Module to Module

Single-axis trackers are engineered to minimize excess materials. Therefore, there are few structural features to affix wire management parts. Attaching wire to the Series 6 module frame is the most efficient means of properly securing PV cable.

HellermannTyton offers parts designed specifically for the Series 6 module mounting hole. Never secure PV wires by running cable ties through the module mounting hole. This is one of the most common causes of premature failure on solar installations and an exacerbated problem on single-axis trackers, as the punched hole in a module frame can be sharp and will quickly sever a cable tie, regardless of material. The most vulnerable area for wire management failure occurs where the string bundle is heaviest, or a transition is made to a fixed point. This typically happens at the end of a tracker row or where a jump is made to an adjoining tracker, down to the torque tube, or where the bundle is transitioned to a fixed post.

A typical failure scenario seen on utility-scale installations is a “zipper” type failure. This occurs when the weakest point breaks and places even greater stress on the next support, causing it to break as well, and so on. Having an arrest mechanism as you get near the end of a row or around the drive motor gap on the Nexttracker systems minimizes this wire management failure point and the subsequent catastrophic failure of an entire tracker’s module strings.





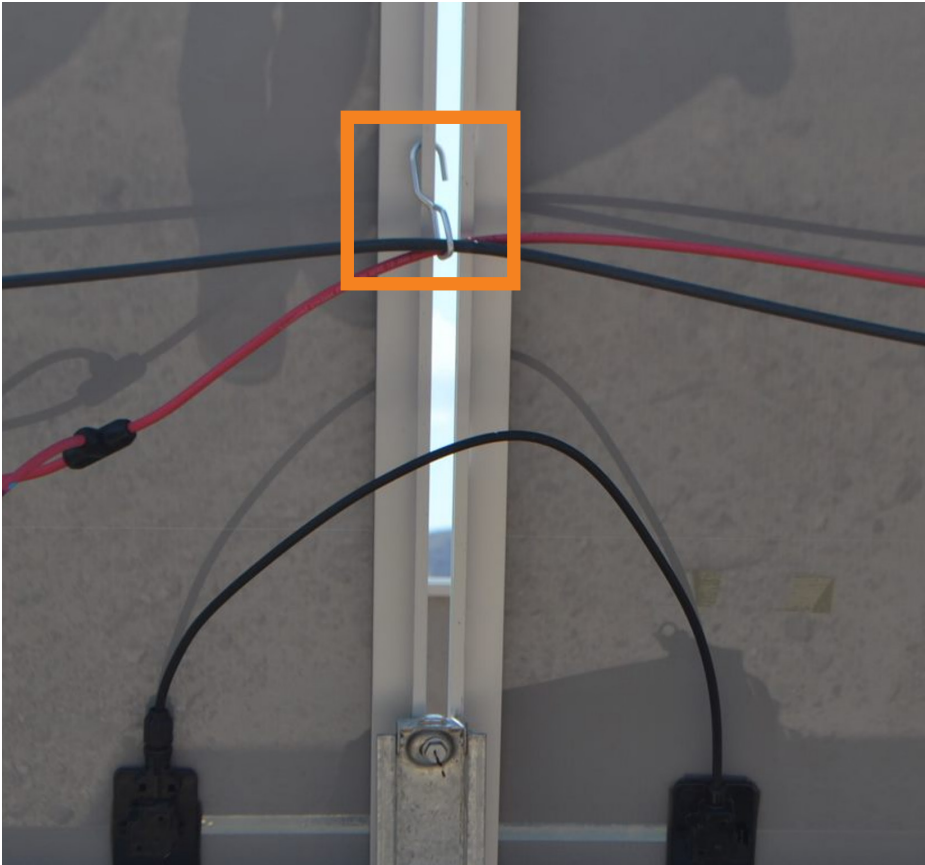
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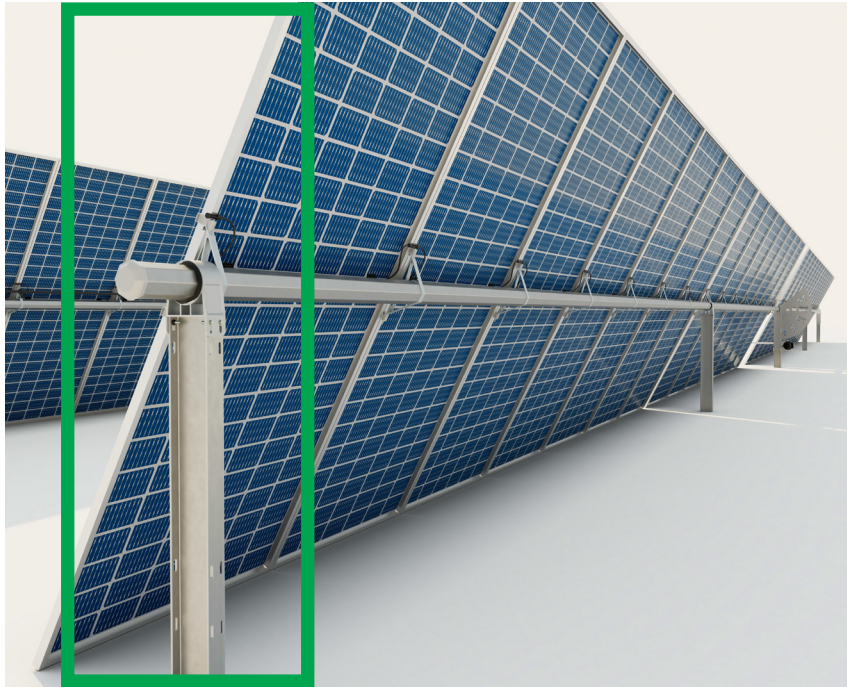


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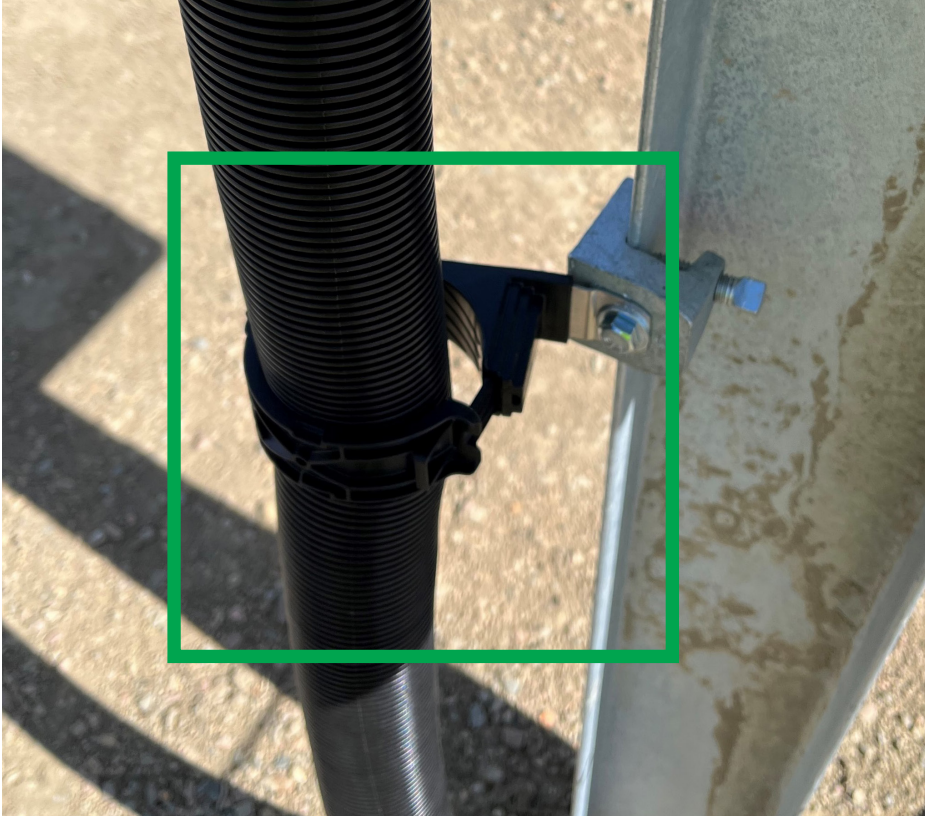
4 End of Row

An arrest mechanism should be securely fastened to each module adjacent to the gap or at the end of the row. This jump is often given extra UV and abrasion protection by using some type of split loom or braided sleeving covering. In this case, the arresting mechanism should securely hold both the wire bundle and the protective covering.

This is a particularly important area of the system with the Nexttracker Horizon XTR for sites with rolling terrain. These sites often see row ends meet other row ends, and the homerun needs a jumper, leaving the wires exposed to elements such as wind and rain.



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About HellermannTyton

HellermannTyton is a global manufacturer of cable management and identification solutions for automotive, solar, electrical, construction, industrial automation, broadband and other OEM markets. The company's integrated approach to product design, sustainability, production, quality assurance and delivery is optimized to benefit local and global customers.

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