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Introduction

Pandja's Net.LEG is a rugged solar roof mount design that is scalable from a single panel mount to large commercial installations. Entirely made of Aluminium with stainless steel hardware, it is a durable and fast to install solution. Net.LEG contains just two pre-assembled components which are easy to move and to install. The support can be attached to the roof by penetration, or mounted on rails or ballast blocks. Net.LEG is engineered in Germany and a proprietary design of Pandja.

Disclaimer

This manual describes the proper installation procedures required for product reliability and warranty. All installers must thoroughly read this manual and have a clear understanding of the installation steps and procedures prior to installation. Failure to follow these guidelines may result in damage, loss of warranty, injury or even death.

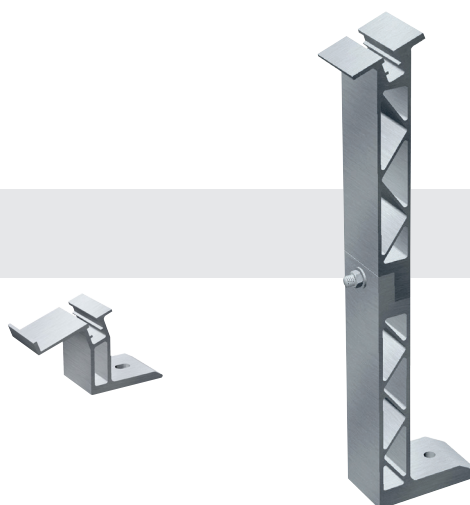
Parts and Hardware

Scope of delivery

Front Leg

Rear Leg

pre-assembled



Parts (not scope of delivery)

Termination Clamp

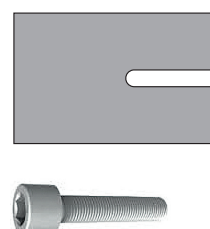
Middle Clamp



Accessories

Spacer

Allen Screw M4x20



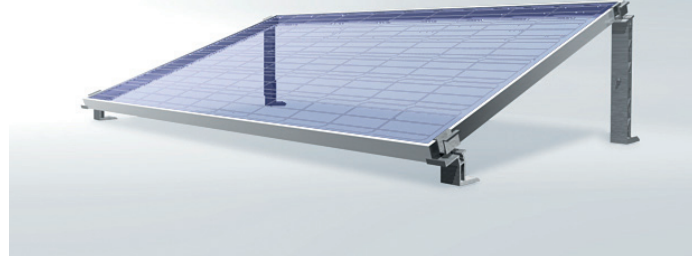
Required Tools

Wrench WS 13 mm

Allen key



Installation



Step 1 Determination of fasteners

Always use suitable fasteners M8 for attachment to a rigid ground.

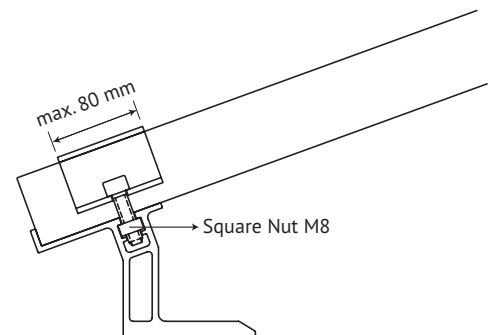
We recommend allen head cap screws M8 A2-70 ISO 4762 (DIN 912). Always use washers. Tighten fasteners with a torque as required by the manufacturer.

If you use fasteners other than recommended, make sure that both ground and fastener can withstand the loads as shown on page 8 „Permissible Loads Net.LEG“. Follow minimum requirements and further instructions of the manufacturer.

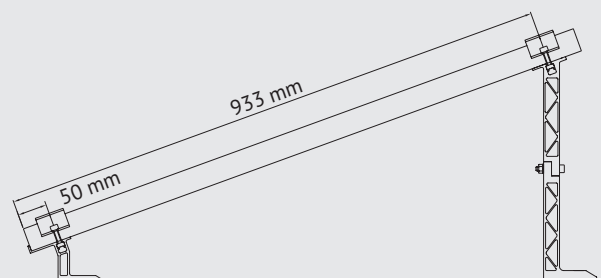
Step 2 Determination of module attachment

Modules can be fixed by standard clamps (maximum width 80mm).

Use M8 slot in the leg's module support in conjunction with M8 allen screws and M8 square nuts. Length of screws is dependent on clamp design and module frame height.

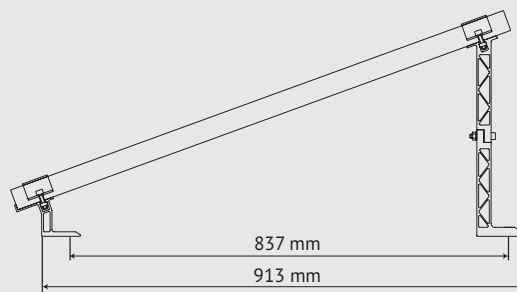


Rear clamping area can shift slightly depending on module measurement. Check module manufacturers installation guides accordingly.

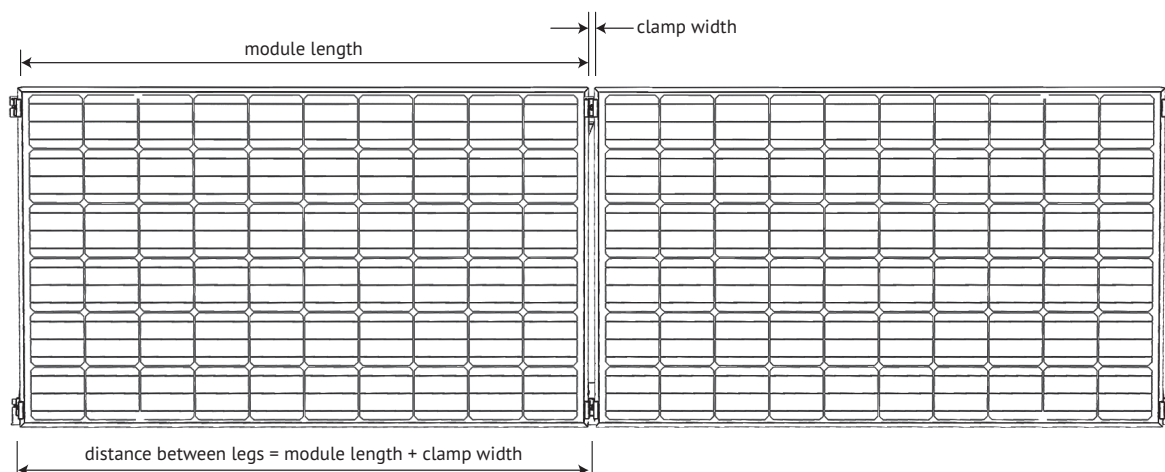


Step 3 Determination of bottom attachment points

Distance between front leg and rear leg is shown in the drawing and applies for all modules to be mounted.

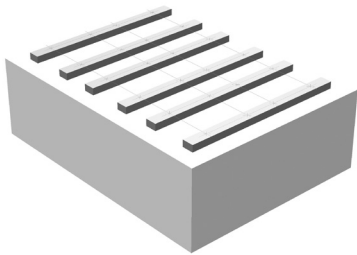


The distance of legs in a row is calculated as length of module plus clamp width.



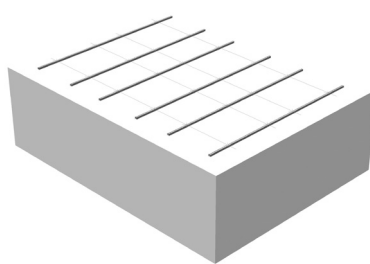
Step 4 Array Layout

Determine suitable roof area.
Mark position of attachment points.
Prepare ground for installation of Net.LEG.



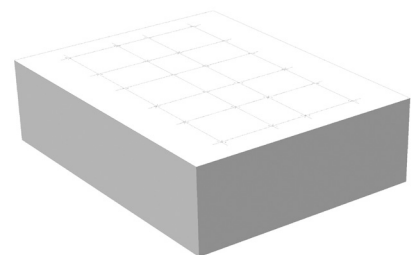
On ballast

1. Determine base and center lines
2. Position ballast
3. Mark attachment points
4. Drill holes



On mounting rails

1. Determine base and center lines
2. Mark attachment points
3. Position rails
4. Fasten rails



Roof penetration

1. Determine base and center lines
2. Mark attachment points
3. Drill holes

- If legs are used in conjunction with mounting rails, rails must be mounted longitudinal to floor slab of the leg. Minimum width of rails is 38mm. Assure that mounting rails are properly dimensioned for given wind and snow loads and attached to the roof.

- If pre-cast ballast is used without roof penetration, make sure ballast is dimensioned sufficiently and that ballast under no circumstances can move based on the maximum permissible wind and snow loads.

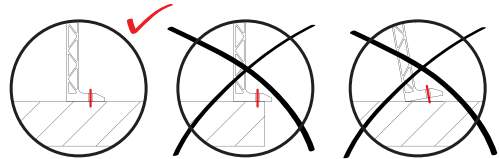


Step 5 Mounting

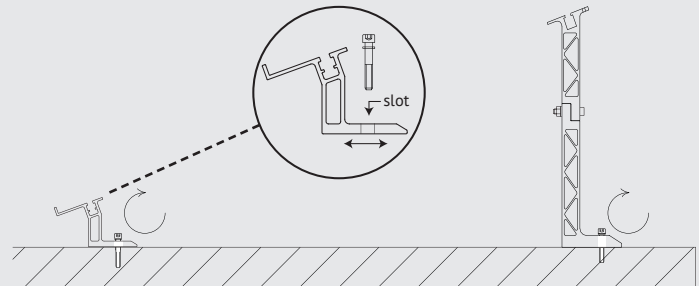
Note the following requirements:

- Modules have to be mounted stress relieved.
- Floor slabs of legs have to be attached plane to surface.

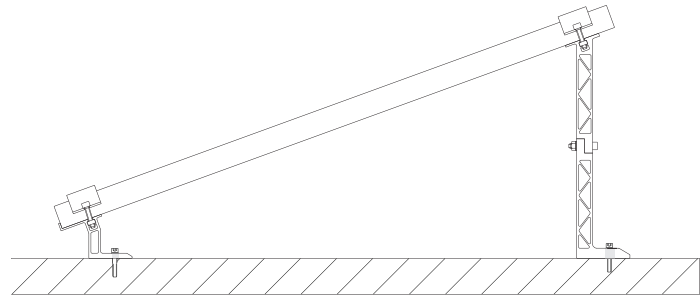
Warning: Modules may be damaged if legs are not levelled.



Mount legs on designated attachment points. Use slots in front legs for adjustment. Tighten fasteners with torque as required by manufacturer.



At the beginning of a row, lay down first module and position. Module clamps shall be aligned to the center line of the leg's module support. Bring termination and middle clamps in position. Do not tighten clamps.



Lay down next module. Once centered, tighten module clamps of first module.

Repeat these steps for all modules in a row.

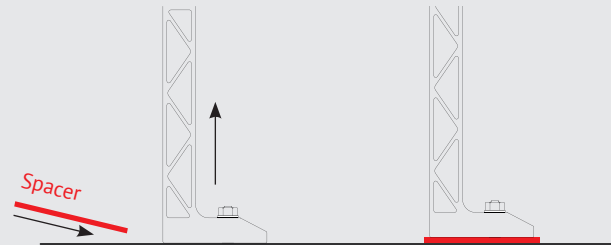
Step 6 Levelling

Legs may be levelled by using spacers (see Accessories).

Untighten fastener and slide spacer between floor slab and ground. Tighten fastener again.

Note: Spacers can be used for both front and rear leg.

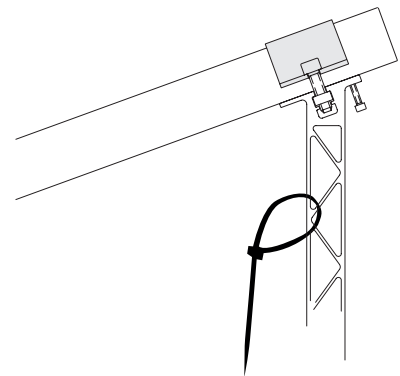
Note: If spacers are used longer fasteners may be required.



Step 7 Wiring

Cables can be fastened to the hollow sections of the rear leg.

Use cable ties to position the wires.
Pull the tie with care.



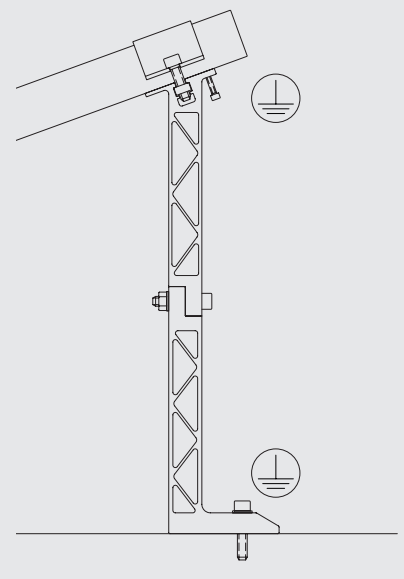
Step 8 Grounding Option

With Net.LEG, grounding of a whole field of modules is made simple. Use the threads in the module support of the rear leg and tighten 2 Allen screws M4x20 (see Accessories) with care.

The Allen screw is scratching the anodized surface of the module, grounding the module effectively.

If legs are mounted on a metallic surface, apply this method to ground the whole system.

On non-metallic ground (for example concrete), connect all rows by using a earth wire and grounding lugs, by best practice in PV installations, or as specified in the National Electric Code.



Permissible Loads Net.LEG

value of basic wind speed $v_{b,0}$ [m/s]	basic wind speed pressure $q_{b,0}$ [kN/m ²]	wind gust pressure q_p [kN/m ²]	top wind speed [m/s]	snow load [kN/m ²]*	tensile load on screws (roof / ground attachment) [kN]**	shearing load on screws (roof / ground attachment) [kN]**
22.5	0.32	0.54	29.4	4.50	2.30	0.40
25.0	0.39	0.66	32.5	4.00	2.80	0.40
25.0	0.39	0.90	37.9	3.50	3.80	0.60
27.5	0.47	0.80	35.8	3.50	3.50	0.50
27.5	0.47	1.08	41.6	2.50	4.50	0.70
30.0	0.56	0.95	39.0	2.50	4.00	0.60
30.0	0.56	1.29	45.4	-	5.40	0.80

* allowable snow load based on horizontal plane

** safety factor 1,0

Code Compliance

The installer has to assure that any installation complies with the following codes but not excluding any national code or practice not indicated here:

- National or International Building Code
- National Electric Code
- National or International Fire Protection Code

Safety and General Provisions

- All work must comply with all national, state and local installation procedures, product and safety (OHSA) standards.
- All electrical installation and procedures should be conducted by skilled, licensed and bonded electricians.
- Remove all loose debris or gravel prior to installation.
- Avoid concentrated loads on the roof. Never drag Pandja's Net.LEG components or ballast into place. Elevate the component, and then move it manually or with a cart. To ensure roofing system warranty continuation, work with roofing system installation contractors to ensure compatibility between roofing system and mounting structure components.
- At the end of every work day ensure all components are securely attached. Temporary ballast may be required to secure the system to the roof during the installation process to prevent movement or damage due to wind.

- As soon as modules are installed an electrical shock hazard is present.
- Proper fall protection should be in place at all work sites. These may include personal fall arrest systems, safety nets, guardrails, and other as outlined in OHSA regulations.
- Make sure to pick up and not drag your feet when working on site, and always pay attention to your path of movement to note any obstructions that could create a trip hazard.
- The installation process of a PV system with Pandja's Net.LEG involves lifting of heavy items that could lead to personal injury and damage to property.
- Metal components may have sharp edges, so be sure to handle with care and utilize proper personal protection equipment, especially gloves, during handling.
- All personnel should utilize and implement proper Personal Protective Equipment (PPE) per OSHA requirements.