SOLAR ROOF MOUNTING SYSTEM
INSTALLATION MANUAL
MODEL NAME: TT-KLIPLOK

JIANGYIN TITANERGY CO.,LTD

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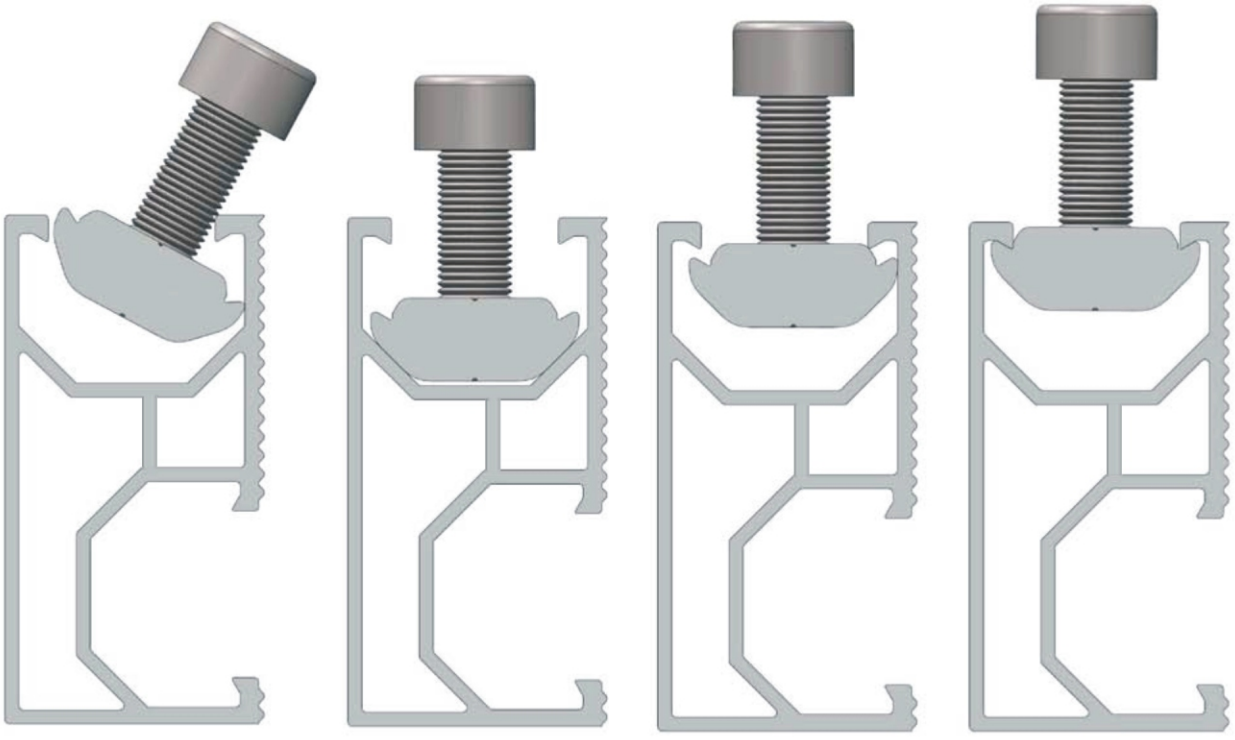
1. General information

Thank you for choosing the Titan solar roof mounting system. Made from custom-built aluminum extrusions and components, Titan Solar's innovated design and improved frame strength greatly simplify solar panel installation. The easy installation four steps make the D-Modules can be put into the D Rail on any position quickly. So, the D-Modules is pre-assembly with the clamp to save your install time.



Tilt-in Align Up Fasten

Easy installation four steps

Titan solar's versatile design makes it suitable for a wide variety of building types and zones including residential, commercial and remote environments.

Titansolar is backed by a 10-year warranty**(Fire Rated:A)** .

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2. Safety and Installer Responsibilities

Caution

Installation of this product is to be performed only by professionally trained installers. Any attempt by an unqualified person to install this product could result in death or serious injury.

2.1 Handling and Installing Titan solar

It is critically important that safety practices are observed when installing

※ Do not throw or roughly handle any Titan solar components.

※ Do not bring Titan solar system into contact with sharp or heavy objects.

※ Do not modify Titan solar components in any way. The exchange of bolts, drilling of holes, bending or any other physical changes not described in standard installation procedure will void the warranty.

※ It is the installer's responsibility to verify the integrity of the structure to which Titan solar components is fixed. Roofs or structures with rotten/rusted bearers, undersized bearers, excessively spaced bearers, or any other unsuitable substructure cannot be used with Titan solar components, and installation on such structures will void the warranty, and could result in death or serious injury.

2.2 Wind and Climate Design

Determining the wind pressures applies to your Titan solar system install site, taking into account roof shape and geographic location. Sufficient guidance is given in this document, but you may wish to procure a copy of these standards.

※ REMEMBER average wind speeds are higher for structures mounted closer to the roof perimeter zone (edge). Refer to 'Fixing within Roof Installation Zone' for more information)

※ Make sure your installation complies with local and national building codes. Take into account relevant design parameters (wind speed, exposure and topographic factor) when determining the loading for the installation.

※ If alternative fasteners are used to fix the framing to the roof (assuming supplied fasteners are unsuitable for any reason), all screw fasteners must be of equal or greater strength to those supplied with your Titan solar system order.

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3. Technical Specifications

3.1 Applications

※ Commercial and residential buildings
※ Marine applications and remote areas

Caution

Refer to the section "Designing Your System" before attempting installation. Failure to correctly establish the requirement of the proposed installation site is dangerous and will void the framing warranty.

3.2 Features

※ 6005-T5 Aluminum extrusion
※ Innovated designed of the D-Modules, which can be pre-assembly with the clamp, make the installation easy and quick.
※ Suitable for difference conditions and the most solar panels at present market.
※ Significantly higher strength-to-weight ratio than other framing products, providing improved efficiency due to greater frame spans, inherent corrosion resistance resulting in low ongoing maintenance and an extended product life.
※ Anodized finish

3.3 Material

Material	Tensile strength	
	Ultimate	Yield
6005-T5 Aluminum Extruded	260MPa	240Mpa
Stainless Steel 304	635MPa	235MPa
Stainless Steel A2-70	700MPa	450Mpa

3.4. Installation condition

Roof slope	0° to 60°
Building height	Up to 20m
Mounting structure	Timber
Roof types	Flat or pitched steel
System angle	Flushed with the roof

Note: if the condition is over the table list, please contact us to confirm.

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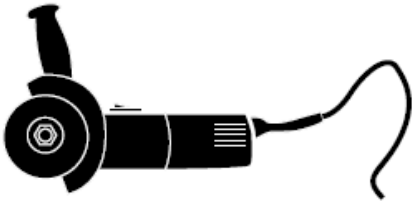
4. Tools for Installation

The following tools are required for the installation:

※ 6 mm Allen key or hexagonal driver bit. If using a 6mm driver bit, make sure the cordless power tool used for the driving has a hand-tight clutch setting a fine (soft) impact drive to prevent damage to the fragile glass panels and threads on the Structure.	
※ Cordless drill; Drill or impact driver for driving roof material fixings	
※ Angle grinder; For terracotta tile roof installation, and angle grinder fitted with a continuous edge diamond tipped tile cutting blade; gloves, hearing protection, a face protection mask, and a suitably rated breathing protection mask for all people in proximity of grinding	
※ Gloves; Protect the hazard of the sharp corners.	
※ Cord or color pen; Mark the installation position;	
※ Spirit level	
※ Rule	

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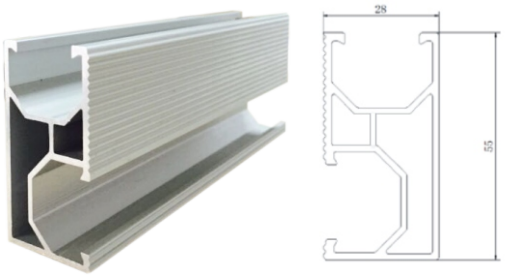
5. Components Description

TT- Rail

※ hold each panel row
※ length can be customized
※ 6005-T5 extruded aluminum

Standard Rail Length	
808~826mm wide panels	990~1100mm wide panels
2560mm (3 panels)	
3405mm (4 panels)	4200/4400mm (4 panels)

※The length of TT-Rail can be customized.(1.05m~15.90m)
※The installation direction of panels can be customized.(horizontal or vertical)



TT Rail Splice Kit (with toothed gear)

※ Extend TT Rail to any length as required by the quantity or width of the solar panels
※ Include 2pcs M8 toothed gears,2pcs M8*20bolts, 2pcs M8 spring washers, 2pcs M8,OD18 lock washers

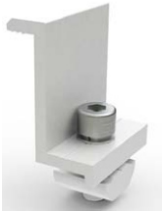
Inter Clamp Kit for Framed Modules

※ Fit between two panels
※ Fastened with a 6mm Allen key
※ Standard pre-assembly for the usual panels with thickness 30, 35, 40, 46, 50, 57mm
※ Include 1pc M8 bolt,1pc M8 spring washer,1pc nut

Type	Bolt
Inter clamp kit 35	M8*45
Inter clamp kit 40	M8*50
Inter clamp kit 46	M8*55
Inter clamp kit 50	M8*60

End Clamp Kit for Framed Modules

※ Hold the edge of each end panels
※ Fastened with a 6mm Allen key
※ Standard pre-assembly for the usual panels with thickness 30, 35, 40, 46, 50, 57mm
※ Include 1pc M8*25 bolt,1pc M8 spring washer,1pc nut



Grounding Lug

※ Fix the wire
※ Material:Cu
※ Include 1pc M8*25 bolt,1pc M8 spring washer, 1pc M8,OD18 lock washer,1pc nut,1pcM6*15 bolt

Grounding Clip

※ Electric Conduction
※ Material:Stainless steel

Rubber Pad

※ Wearing Pads
※ Change in time

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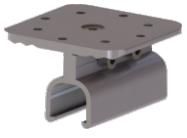
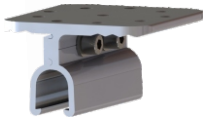
Tin Roof Hook (L leg) ※ Fix on the kliplok ※ Include 1pc M8*25 bolt,1pc M8 spring washer, 1pc M8,OD18 lock washer,1pc nut	
Adjustable Tilt Front Leg ※ Fix on the kliplok ※ Include 1pc M8*25 bolt,1pc M8 spring washer, 2pcs M8,OD18 lock washers,1pc nut, 1pc M8*55 bolt,1pc flange nut with M8 locking teeth	
Adjustable Tilt Rear Leg ※ Fix on the kliplok ※ Include 1pc M8*25 bolt,1pc M8 spring washer, 2pcs M8,OD18 lock washers,1pc nut, 1pc M8*55 bolt,4pcs flange nuts with M8 locking teeth,1pc M8*20 bolt,1pc M8*15 bolt	
Triangle Frame ※ Fix on the kliplok ※ Include 1pc M8*50 bolt,1pc M8*20 bolt, 1pc M8*45 bolt,2pcs M8*16 bolts,3pcs M8, OD18 lock washers,5pcs flange nuts with M8 locking teeth	
Rail Clamp ※ Hold rails ※ Include 1pc M8*25 bolt,1pc M8 Spring washer, 1pc nut	
Bolts & Nuts ※ Fix tin roof hook to kliplok ※ Include 1pc M8*25 bolt,1pc M8 spring washer, 1pc M8,OD18 lock washer,1pc nut	

Variety of klip-lok	
Klip-lok 700 ※ Fix on the roof ※ Include 2pcs M8*16 bolts,2pcs M8 spring washers ※ Include 2pcs M8*20 bolts,2pcs M8 spring washers, 2pcs M8,OD18 lock washers	
Klip-lok 406 ※ Fix on the roof ※ Include 2pcs M8*16 bolts,2pcs M8 spring washers ※ Include 1pc M8*20 bolt,1pc M8 spring washer, 1pc M8,OD18 lock washer	
Klip-lok SK7 ※ Fix on the roof ※ Include 1pc M8*35 bolt,1pc M8 spring washer ※ Include 1pc M8*25 bolt,1pc M8 spring washer, 1pc M8,OD18 lock washer	
Cliplok 1# ※ Fix on the roof ※ Include 2pcs M8*35 bolt, 2pcs M8 spring washer, 2pcs M8 flat washer ※ Include 2pcs M8*20 bolt, 2pcs M8 spring washer, 2pcs M8 flat washer	

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Variety of Screws	
Wood Screw ※ With pad	
Socket Head Screw	

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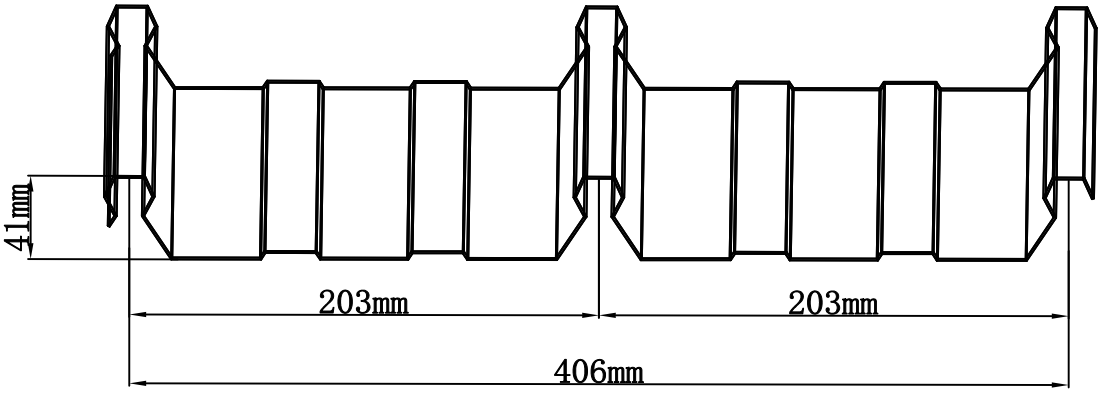
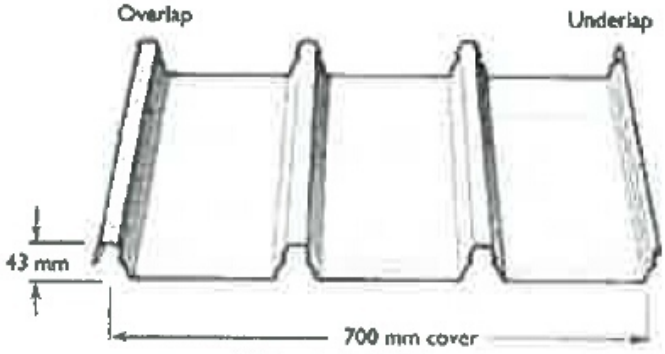
6. Determine the type of concealed roof

The best way to identify the type of concealed roof installed is to check the label normally located underneath the roofing sheet.

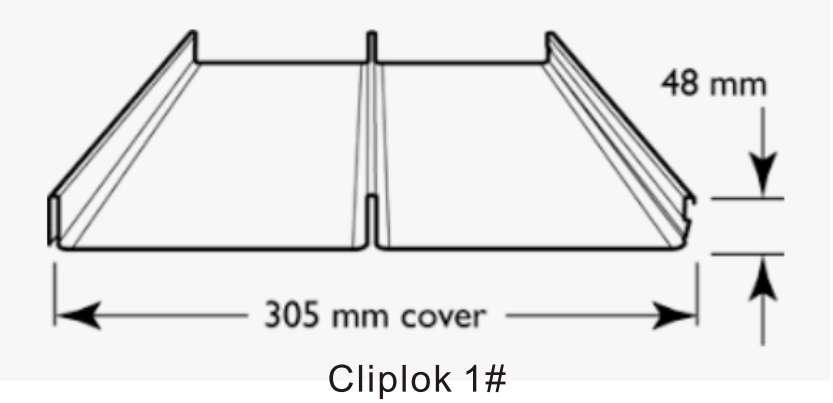
Otherwise, you can contact the builder or check the building plan to find out the exact type of the roofing sheet.



Klip-Lok 406



Klip-lok 700



Cliplok 1#

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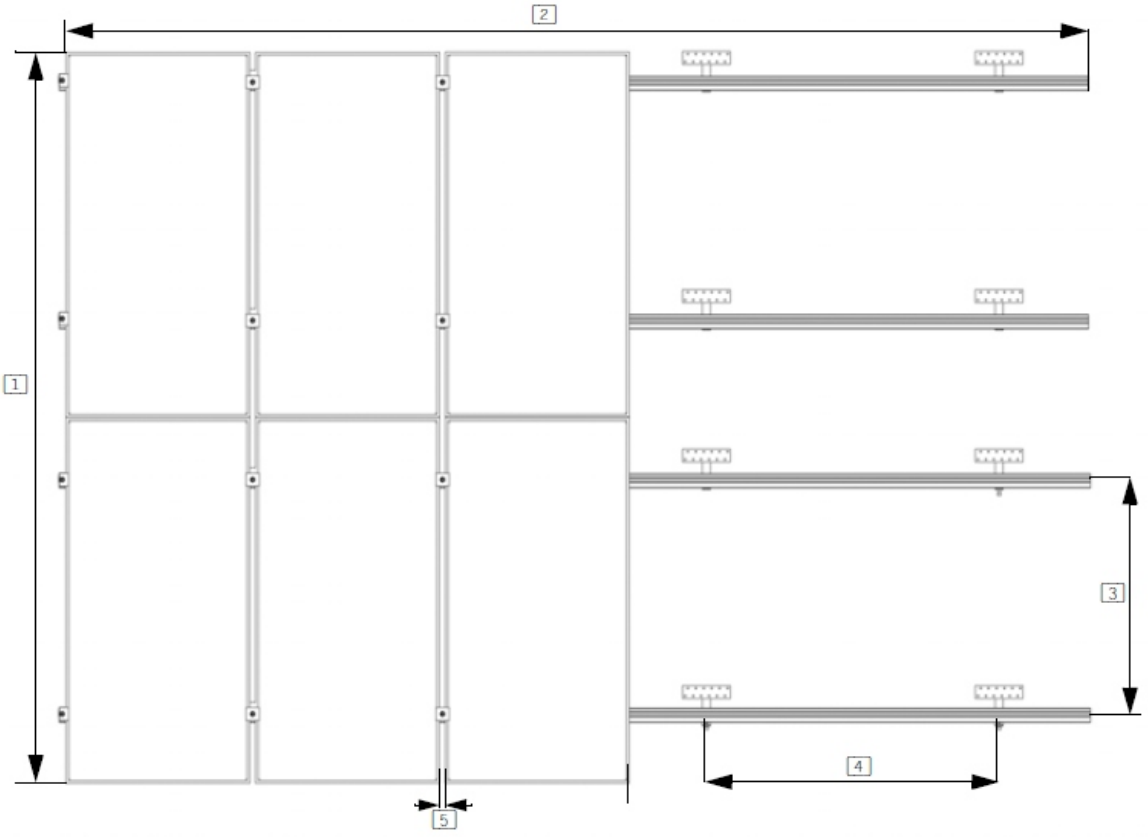
7. Designing the module field

Below, the distances between roof connections for a portrait installation are specified. Clamp on roof hooks need to be installed in specific distances, depending on the distance of rafters and the stoical conditions.



1 Height of the module field: module height x number of modules vertically
2 Width of the module field: number of modules horizontally x (width of the module + 18 mm)+32 mm
3 Distance between roof connections vertically (according to the clamping points pre-defined by the module producer): Quarter-points of the modules, about 1/2 of module height.
4 Distance between roof connections horizontally: Depending on the distance between rafters and on the static requirements (please see the ***Chapter 8*** on page 11).
5 Distance between modules: 17 mm

When positioning the modules, please take into consideration

※ That the values above are
※ That dimensions of roof covering and the position of the rafters define the precise actual horizontal distance between roof connections
※ That the distance between roof laths defines the precise actual vertical distance between roof connections.

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8. Planning

8.1 Determine the wind region of your installation site

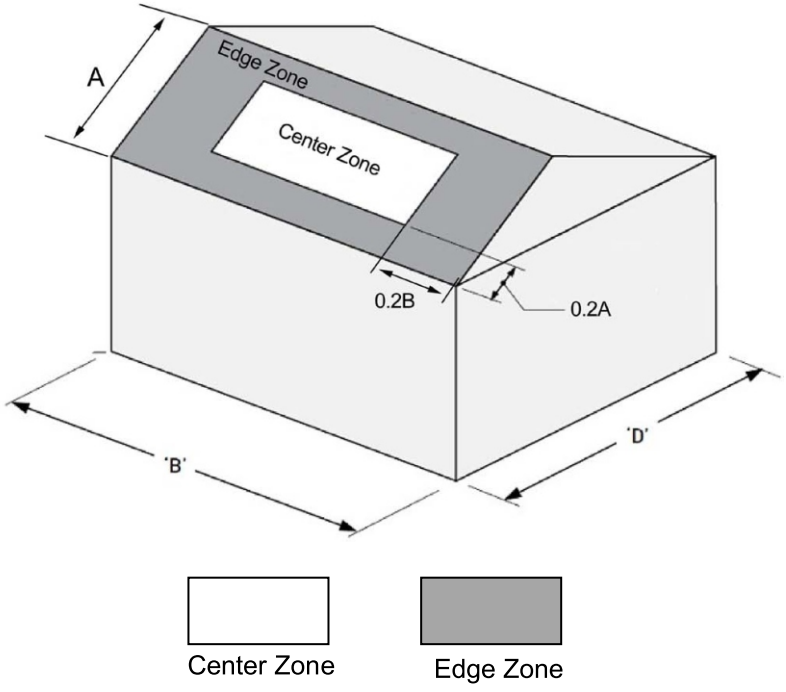
Region A	A≤ 41msec
Region B	41msec < B≤ 48msec
Region C	48msec < C≤ 56msec
Region D	56msec < D≤ 66msec

8.2. Determine the height of the of your installation site

This document provides sufficient information for Titan solar system installation height less than 20 meters. If your installation site is more than 20 meters in height, please contact Titan solar to obtain engineering data to support your installation.

8.3 Determine Roof Installation Roof Areas

Titan solar system can be installed anywhere on a roof but fixing centers are required to be reduced at ridges and edges. The diagram below shows the area of higher wind loadings within 0.2A and 0.2Bof a roof edge ridge (where A and B are the planned dimension of the building).



The following table will help you determine the maximum rail support spacing for your project.
Also note that if the roof slope is less than 10 degree the reduction on spacing does not apply.

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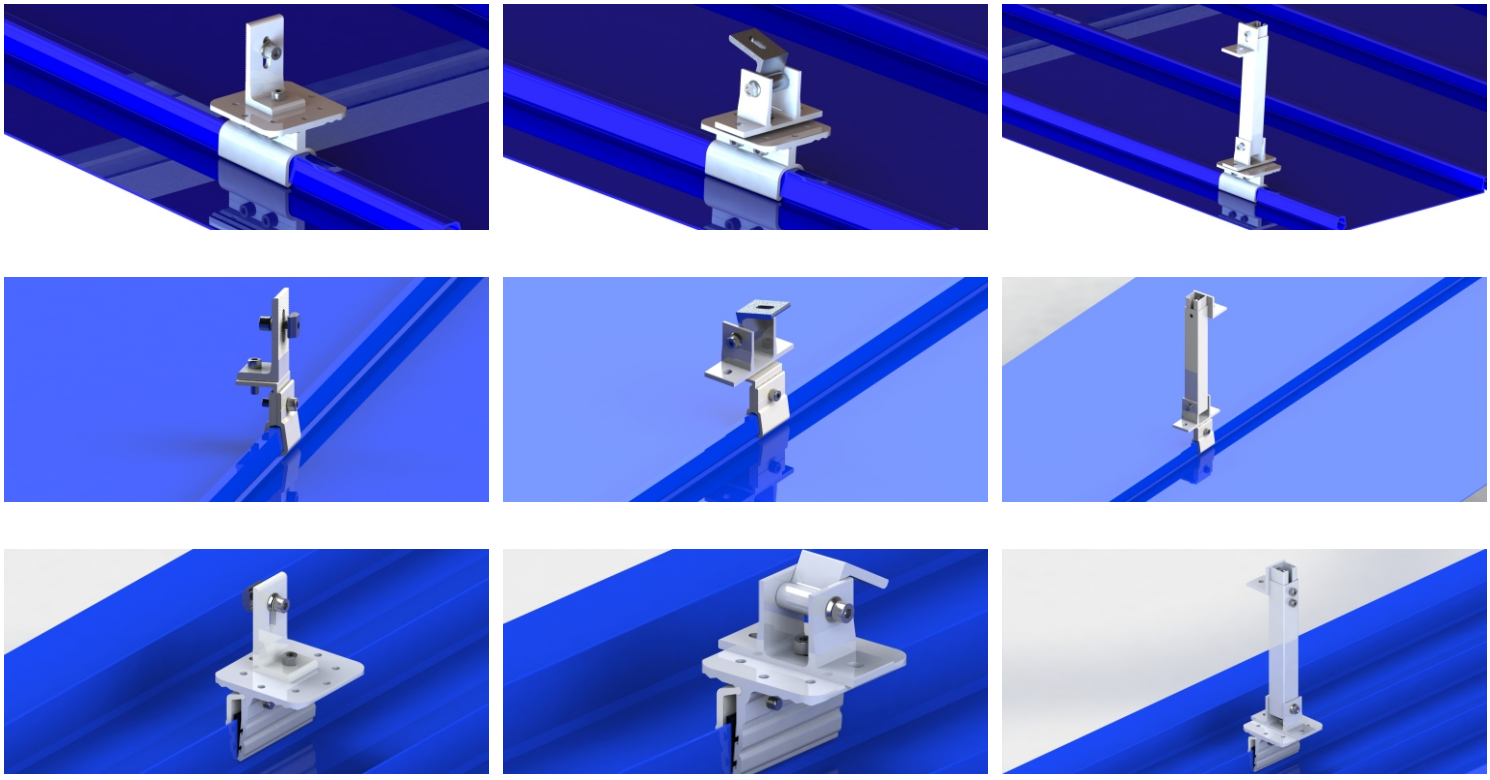
8.4 Determine the maximum Klip-Lok interface spacing

a) Direct mounting or using Tin roof hook (L–leg) and , Tilt legs and rails



SUMMARY- T.C.3 for Regions A, B, C

Roof Interface Bracket Spacing (mm) Across for PV – Triangle frame and Adjustable Tilting System
Two Klip-Loks per frame

Design Data

KlipLok	Capacity kN
KlipLok 406	0.40
KlipLok 700	0.87
Cliplok 1#	0.85
KlipLok SK7	0.43

Kliplok 406 Max.Support Spacing(mm) ⩽15°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	560	100	440	100	290	100
10Meters	490	100	380	100	250	100
15Meters	430	100	340	100	220	100
20Meters	410	100	320	100	210	100

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Kliplok 406 Max.Support Spacing ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	460	100	330	100	160	100
10Meters	430	100	290	100	150	100
15Meters	360	100	260	100	N/A	100
20Meters	330	100	240	100	N/A	100

Kliplok 700 Max.Support Spacing(mm) ⩽15°

Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1230	100	960	100	630	100
10Meters	1070	100	830	100	540	100
15Meters	950	100	750	100	490	100
20Meters	890	100	700	100	450	100

Kliplok 700 Max.Support Spacing(mm) ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1000	100	730	100	360	100
10Meters	950	100	630	100	340	100
15Meters	780	100	570	100	310	100
20Meters	720	100	530	100	290	100

Cliplok 1# Max.Support Spacing(mm) ⩽15°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1200	100	930	100	600	100
10Meters	1050	100	800	100	500	100
15Meters	920	100	720	100	450	100
20Meters	850	100	670	100	420	100

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Cliplok 1# Max.Support Spacing(mm) ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	980	100	700	100	330	100
10Meters	920	100	600	100	300	100
15Meters	750	100	550	100	280	100
20Meters	700	100	500	100	250	100

Kliplok SK7 Max.Support Spacing(mm) ⩽15°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	610	100	470	100	310	100
10Meters	520	100	410	100	260	100
15Meters	470	100	370	100	240	100
20Meters	440	100	340	100	220	100

Kliplok SK7 Max.Support Spacing(mm) ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	490	100	360	100	180	100
10Meters	470	100	310	100	170	100
15Meters	380	100	280	100	150	100
20Meters	360	100	260	100	N/A	100

1. Roof interface bracket spacing in the above table for panel length of 2.2m.
2. The table prepared based on GD Rail capacity and KlipLok bracket pull-out capacity.
3. These tables refer to using KlipLok type interface with Adjustable Tilt Leg using 2-M8 bolts for the connection and also with single Triangle frame using 2-M8 bolts for connection.
4. Maximum distance allowed from the end of the single Triangle frame base to fixing of the KlipLok bracket is 225mm.
5. The above mentioned spacing table is for Roof Interface Bracket Fixing including edge of the roof.
6. On purlin means that distance from the purlin to the KlipLok type bracket (center to center) is not more than 100mm.
7. Angle refers to tilt angle between roof and panels – not to horizontal.
8. For panels ranging in length 1580 to 1700mm increase spacings by 11.5%
9. For panels ranging in length 1700 to 1800mm increase spacings by 9.0%
10. For panels ranging in length 1800 to 2000mm adopt tabulated spacings

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SUMMARY- T.C.3 for Regions A, B, C

Roof Interface Bracket Spacing (mm) Across for PV – Triangle frame and Adjustable Tilting System
Two Klip-Loks per frame

Design Data

KlipLok	Capacity kN
KlipLok 406	1.37
KlipLok 700	1.17
Cliplok 1#	1.15
KlipLok SK7	0.50

Kliplok 406 Max.Support Spacing(mm) ⩽15°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1490	100	1520	100	990	100
10Meters	1470	100	1310	100	860	100
15Meters	1450	100	1190	100	770	100
20Meters	1400	100	1100	100	720	100

Kliplok 406 Max.Support Spacing ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1430	100	1160	100	570	100
10Meters	1340	100	1000	100	540	100
15Meters	1230	100	900	100	490	100
20Meters	1140	100	840	100	450	100

Kliplok 700 Max.Support Spacing(mm) ⩽15°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1420	100	1300	100	850	100
10Meters	1430	100	1120	100	730	100
15Meters	1280	100	1010	100	660	100
20Meters	1190	100	940	100	610	100

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Kliplok 700 Max.Support Spacing(mm) ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1340	100	990	100	490	100
10Meters	1280	100	850	100	460	100
15Meters	1050	100	770	100	420	100
20Meters	980	100	710	100	390	100

Cliplok 1# Max.Support Spacing(mm) ⩽15°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1400	100	1250	100	820	100
10Meters	1350	100	1100	100	700	100
15Meters	1250	100	1080	100	630	100
20Meters	1150	100	920	100	580	100

Cliplok 1# Max.Support Spacing(mm) ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	1300	100	950	100	450	100
10Meters	1250	100	820	100	430	100
15Meters	1020	100	750	100	400	100
20Meters	950	100	680	100	350	100

Kliplok SK7 Max.Support Spacing(mm) ⩽15°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	700	100	550	100	360	100
10Meters	610	100	480	100	310	100
15Meters	540	100	430	100	280	100
20Meters	510	100	400	100	260	100

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Kliplok SK7 Max.Support Spacing(mm) ⩽30°						
Installation	RegionA		RegionB		RegionC	
Height(m)	Center	Edge	Center	Edge	Center	Edge
5Meters	570	100	420	100	210	100
10Meters	540	100	360	100	190	100
15Meters	450	100	320	100	170	100
20Meters	410	100	300	100	160	100

1. Roof interface bracket spacing in the above table for panel length of 2.2m.
2. The table prepared based on GD Rail capacity and KlipLok bracket pull-out capacity.
3. These tables refer to using KlipLok type interface with Adjustable Tilt Leg using 2-M8 bolts for the connection and also with single Triangle frame using 2-M8 bolts for connection.
4. Maximum distance allowed from the end of the single Triangle frame base to fixing of the KlipLok bracket is 225mm.
5. The above mentioned spacing table is for Roof Interface Bracket Fixing including edge of the roof.
6. On purlin means that distance from the purlin to the KlipLok type bracket (center to center) is not more than 100mm.
7. Angle refers to tilt angle between roof and panels – not to horizontal.
8. For panels ranging in length 1580 to 1700mm increase spacings by 11.5%
9. For panels ranging in length 1700 to 1800mm increase spacings by 9.0%
10. For panels ranging in length 1800 to 2000mm adopt tabulated spacings

8.5 Verify acceptable Rail End Overhang

Rail End Overhang must equal 50 percent or less of foot spacing. Thus, if foot spacing is 1200mm, the Rail End Over hang can be up to 600mm. In this case, two feet can support a rail of as much as 2400mm (1200mm between the feet and 600mm of overhang at each end).

8.6 Determine the roof slope

The Titan Solar Klip-Lok interface can be used for roof slope up to 60 degrees. Please verify that the Installation site roof slope is between 0 and 60 degrees.

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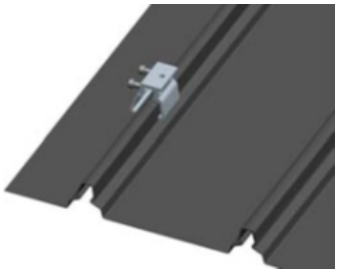
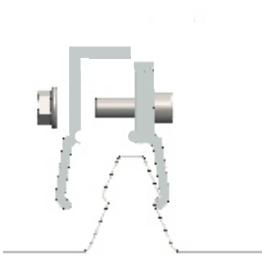
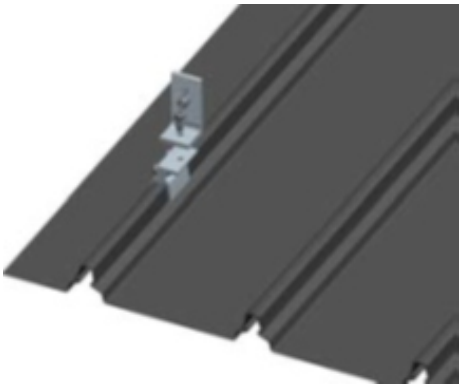
9 . Installation

Install on Tin Roof	
1. Connect KlipLok Interface to the roof tightly. ※ Torsion:23-25N.m	 
2. Fix Tin roof hook/Front leg/Rear leg/ Triangle on KlipLok ※ Kliplok406:using 1pc bolts and nuts ※ Torsion:23-25N.m	

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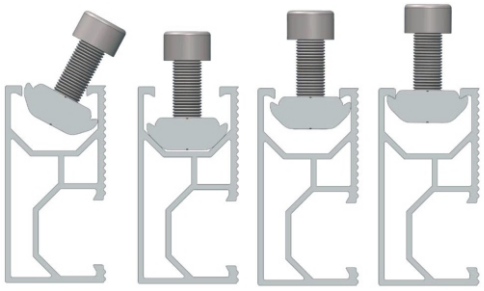
Install The TT -Rail	
3. D-Module quick mount. Four steps to quick mount the D-Module into TT -Rail channel. Move the assembly to it's desired final position, and fastens firmly in place by torque bolt to 10Nm.	
4. Connect the tin roof hook with the TT Rail. a. Insert the D-Module into the side channel of the TT Rail as the step 3 shown. b. Adjust the TT Rail to be level. c. Fasten the bolt. ※ Torsion:23-25N.m	 

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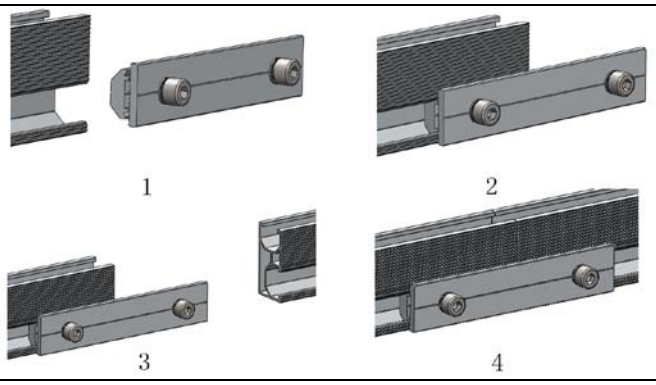
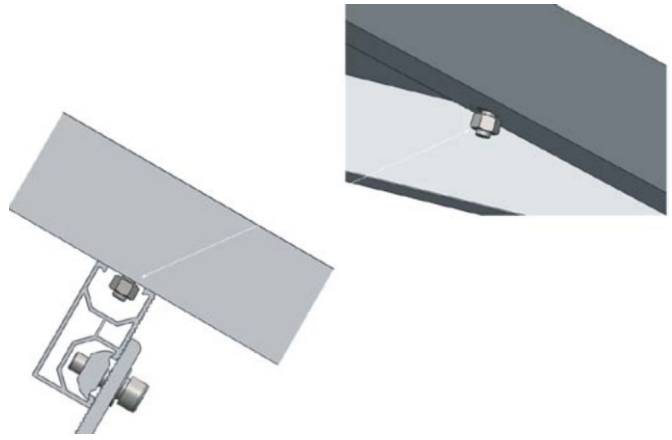
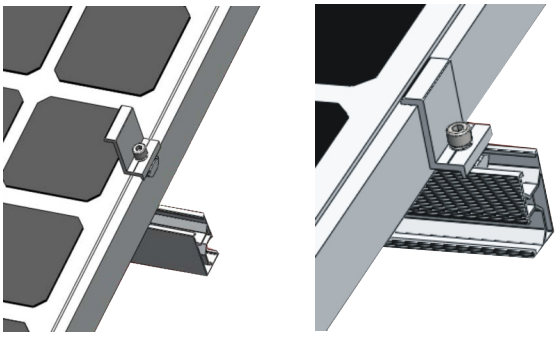
5. TT Rail connect (with toothed gears) a. Put the TT Rail Splice into the side channel of the TT Rail about 75mm, then fasten the M8 Bolt. b. Put the other TT Rail into the other side of the TT Rail Splice and fasten the other M8 bolt. ※ Torsion:23-25N.m	

Install the module	
6. Installing anti-slip protection The anti-lip protection is only necessary on the lowermost row of modules. At first, fit two bolts M6*20 and nuts into the lower holes of each module. Then place the first module of the bottom row so that the anti-slip protection sits in the rail channel of the lowest row of rails ※ Torsion:23-25N.m	
7. Fixing the outer modules by End clamp. a. Put the end clamp kit into the top channel of the TT -Rail as the step 3. b. Push the side of module to firmly against the end clamp and then fasten the bolt. ※ Torsion:23-25N.m	

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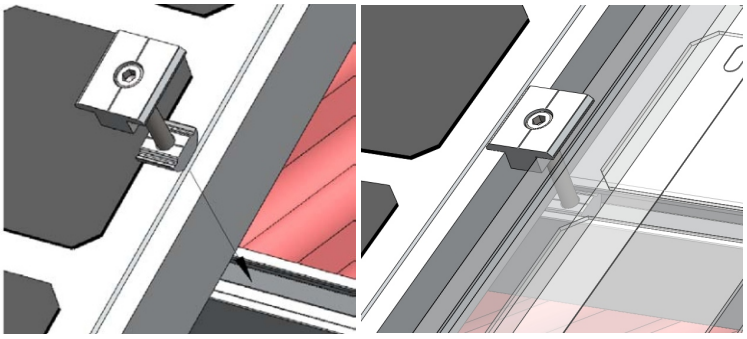
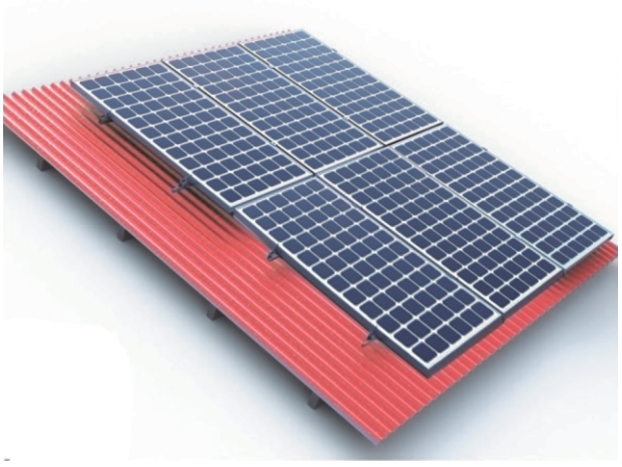
8. Fixing the inter modules by inter clamp. a. Put the inter clamp kit into the top channel of the TT -Rail as the step 3. b. Push the Inter-module clamp firmly against the already fixed module. c. Push the next module against the other side of the module-inter clamp. d. Tighten the bolt ※ Torsion:23-25N.m	
9. Installing the further rows of modules	

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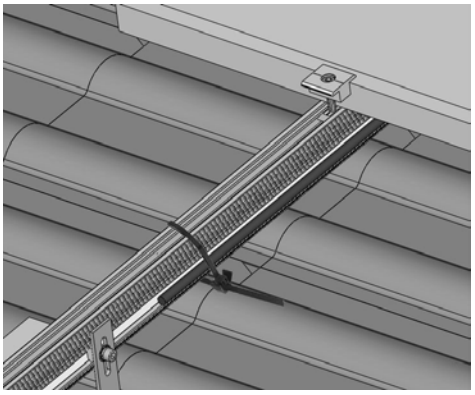
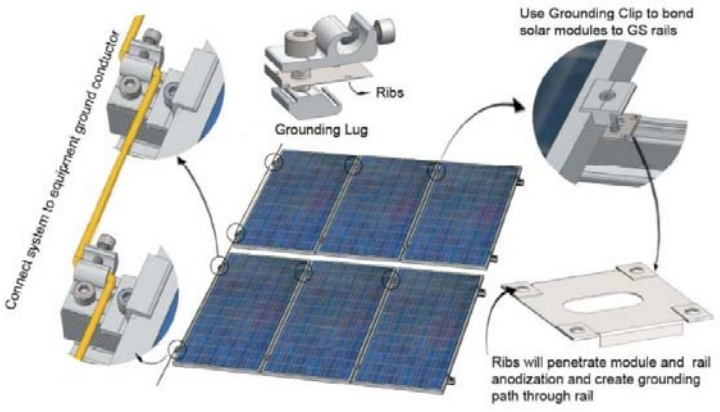
Cable tie and Grounding	
10. Tie cable with the rail a. Tie the cable with the rail using the zip tie	
11. Grounding Please see the Titan Solar Grounding System Installation Guide.	

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10 .Warranty

1. To be used only in combination with modules that include this specific rack system in their installation manual.
   Fire Rated:A
   The minimum distance between module and roof is 8.5cm.
2. This racking system may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.

Jiangyin Titanergy Co., Ltd. warrants that its Titan Solar Panel Mounting System is free from defects in materials and workmanship for a period of 10 years from the date on which the Frame is purchased from Titan Solar, on the terms set out in this warranty.

In the event that the Frame does not conform to this warranty during the Warranty Period, Titan Solar will, at its option, either repair or replace the Frame or pay the cost of having the Frame repaired or replaced. To the extent permitted by law, Titan Solar's total liability under this warranty will in no circumstances exceed the repair or replacement of the Frame or payment of the cost of having the Frame repaired or replaced. In the event of replacement of the Frame, any remaining part of the Warranty Period will be transferred to the replacement Frame.

This warranty will not apply to any defect or damage to the Frame arising directly or indirectly from:

1.Shipment or storage of the Frame;

2.Improper installation, maintenance, repair or use of the Frame;

3. Normal wear and tear;

4. Misuse, neglect, abuse, accidental damage or modification to the Frame;

5. Failure to observe the instructions set out in the System Manual; or

6. Power failure, power surges, lightning, fire, explosion, flood, extreme weather conditions, environmental disasters or other causes outside Grace Solar's control, as determined by Titan Solar in its sole discretion.

This warranty does not cover, and under no circumstances will Titan Solar be liable for, any costs associated with the removal, shipping, handling or re-installation of the Frame or the costs of sending personnel to any site to repair or replace the Frame. This warranty is only provided to the original purchaser of the TItan Solar panels mounting system (Purchaser) or, where the Purchaser is an installer or builder who on-supplies the Frame to another party, to that other party (End-User). This warranty is not transferable.

Where an End-User wants make a claim under this warranty, the End-User must in the first instance contact the installer or builder from whom the Frame was purchased.

This warranty will not apply to any claims received by Titan Solar after the expiration of the Warranty Period. Titan Solar makes no warranties, express or implied, other than the warranties made herein, and specifically disclaim all other warranties, representations and conditions to the extent permitted by law. To the extent permitted by law, in no circumstances will Titan Solar be liable for direct, indirect, special or consequential damages arising from a defective Frame or for any damage or injury to persons or property. Titan Solar's aggregate liability, if any, in damages or otherwise, will not exceed the invoice value of the Frame at the time of purchase from Titan Solar.

Any provision contained in this warranty which is prohibited or unenforceable in any jurisdiction will be deemed to be ineffective to the extent of such prohibition or unenforceability and will not invalidate the remaining provisions nor affect the validity or enforceability of that provision in any other jurisdiction.

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11 . Revision History

Table:Revision History

Revision Number	Revision Date	Reason for change	Document Author
01	2015-10-20	Initial Release	Josie
02	2018-08-01	Product Update:TT-R-SPB	Jason
03	2020-04-15	Product Update:TT-IK-SK7	Jason
04	2020-11-24	Product Update:TT-CK-S01	Jason
05	2021-03-01	Product Update(P7)	Jason