Roof rack special "stainless steel VESA international standard wind pressure resistance" fixing bracket

Applicable to fixing "roof rack solar panels", "roof luggage", "various roof accessories"

The origin... A few months ago, I shared "Planning and testing of the car refrigerator power supply system" on the social networking site

(Refer to this link: https://www.facebook.com/groups/bedincar/permalink/3407224869562497/)

Later, a solar soft board was installed to conduct a power generation test, and the car charger for car power generation + solar power generation charging was used for comprehensive benefit test verification, and the test results were very OK.

However, in order to facilitate the disassembly and assembly of the solar flexible panel in the future, the solar flexible panel is only pulled apart and fixed without special reinforcement and fixing protection.

Later, it was used for about 3 months, and there was no problem with normal charging. As a result, during a drive on National Highway No. 3 in strong wind and heavy rain in Taiwan, after the soft solar panel heard a loud noise of floating on the roof, although there were no signs of damage on the surface. , but the solar output voltage could no longer be measured, 30 children drifted away with the wind (Taiwan 1000 dollar money paper had printed 6 children in surface), and the test plan was terminated in less than half a year!!

After several evaluations, it was finally decided to use hard-frame solar panels for actual vehicle-exposed power generation.

But immediately encountered :

1. "How to fix the solar panel on the roof rail?"
2. "Is there any ready-made fixing frame that can be purchased and used immediately?"
3. "Will the erected solar panels be dangerous when driving at high speed on the highway?"
4. "For the erected solar panels, is there a fixing frame for quick disassembly and quick assembly?"
5. "Is there a fixed frame that can be adjusted in height, so that it is convenient to use in accordance with the height limit of entering and exiting the parking lot?"
6. "Is there a shock-absorbing mechanism for the fixing frame, which can solve the problem of shaking on the camping road and vibration damage of solar panels?"

A lot of doubts, rummaging in my mind, there are really a lot of question marks, distressed??

I searched the internet and couldn't find a suitable solar roof mount, so frustrating!!

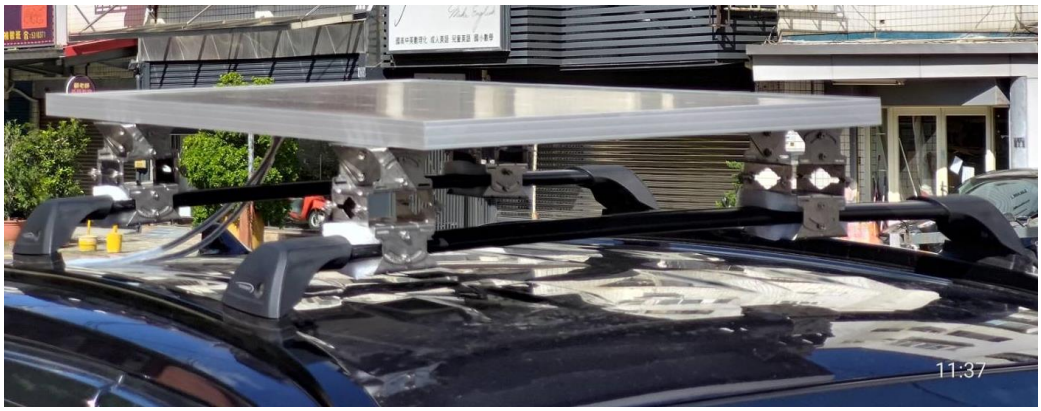
Suddenly changed my mind, Yes ! ! We have open mold production - wind pressure resistant stainless steel fixing frame for outdoor wireless equipment, maybe you can try it.

The origin of the story is too much to say at the beginning, but if I don’t explain it clearly, I can’t highlight

my excitement to solve the problem and the motivation to share good things with Luyou; let's take a look at the specifications and instructions of the mount:




■ Main specifications of stainless steel 17-level wind pressure-resistant fixing frame:



1. Stainless steel material: SUS2B-1.5T / 114 x 93 x 49.89mm / Thickness: 1.2mm.

2. Fixing point standard: Two kinds of screw fixing point sizes can be freely selected.

A. 75mm * 75mm square VESA international mount specification standard.

B. 60mm * 60mm square general outdoor equipment fixed specification standard.

3. Bearing wind pressure: (National Highway 1 and National Highway 3, 660x1324x35mm solar panels, measured 120Km/s speed, verification OK)

A. One set of fixing brackets can carry 300-500 kg wind pressure weight.

B. 4 sets of fixed frames can carry more than 1200 kg of wind pressure.

C. It can fully withstand the wind pressure of the speed of the expressway above 110Km/s.

Note: It can carry 17 levels of 500Kg/m2 wind pressure with an area of 75cm x 75cm.

4. Assembly size/weight:

A. Single-group single-layer fixing frame: length 125 * width 125 * height 75mm / weight: 0.5Kg.

B. Two sets of double-layer stacking brackets: length 125 * width 125 * height 150mm / weight: 1.0Kg.

Note: For special roof racks or cylindrical rod roof racks, you can choose to purchase additional U-shaped M6 screws to achieve special fixing safety effects: stainless steel SUS2B-1.5T / 97 x 94 x M6 mm / thread length: 50mm.

5. Support bar type/roof flat type/belt embracing type fixing:

A. Cylindrical pole fixing: 0.5 ~ 2.5 inch cylindrical pole. Support +-40◦ angle adjustment function to meet the inclined erection of solar panels and the diversion requirements of the car at high speed.

B. Flat roof fixing: 4 square point screw fixings + 1 center point pressing fixing (can fix anti-collision foam).

C. Band-encircling fixation: the band can fix a 10-inch cylindrical pole at most, band width: 15mm max, band thickness: 2mm max, it is recommended to use a stainless steel metal band as a priority, which can enhance the security of the fixation.

6. Roof rack solar panel installation diagram:

A. Wafer roof rack crossbar: The upper and lower sides of the crossbar are padded with anti-collision foam to achieve the effect of suspension and shock absorption when the car is moving.

B. Applicable roof rack pole width: It can be used for roof racks with a width of 100mm, and can be applied to almost all roof racks.

C. Applicable roof rack pole thickness: It can be used for roof racks with a thickness of 54mm, and can be applied to almost all roof racks.

Note: It is recommended to reserve the thickness of the anti-collision foam "upper 22mm + lower 22mm" to facilitate compression and fixation on the fixed roof rack; if the thickness of the anti-collision foam is too thick, please measure and cut it yourself, and the pressure can be achieved by pressing more than 5mm fixed effect.

D. Fixed on the solar panel frame: 3 sets of M5 stainless steel screws are locked with the metal frame of the solar panel, and the strength can reach 300-500 kg; 4 sets of 12 M5 stainless steel screws can withstand wind of more than 1.2 tons Pressure weight.

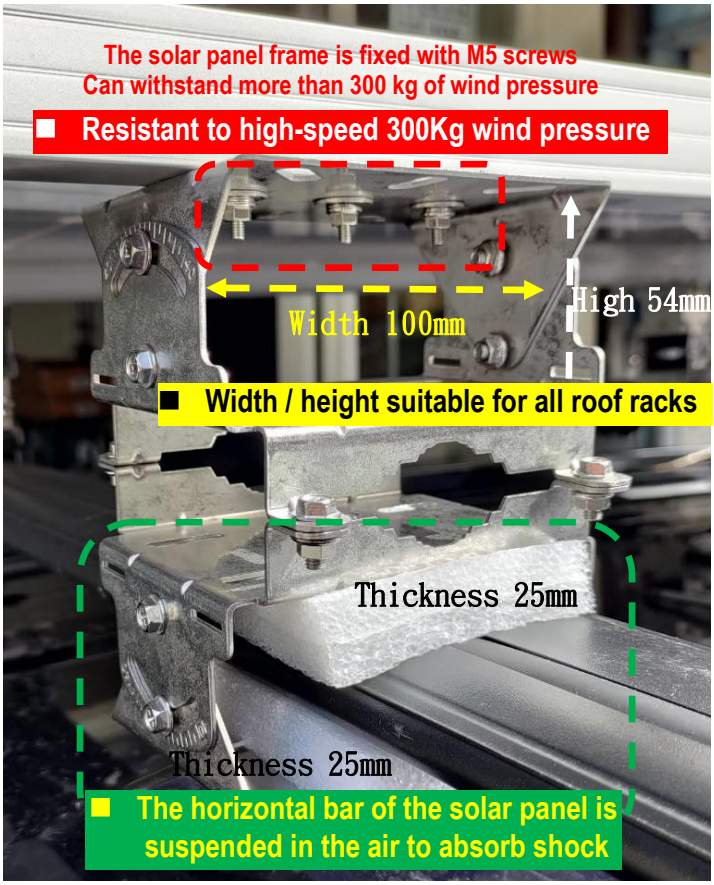
E. Fixed inclination angle adjustment: The fixed frame has an angle adjustment function of +-40 degrees, which is convenient to meet the inclination erection requirements of solar panels and the purpose of traffic diversion on expressways.

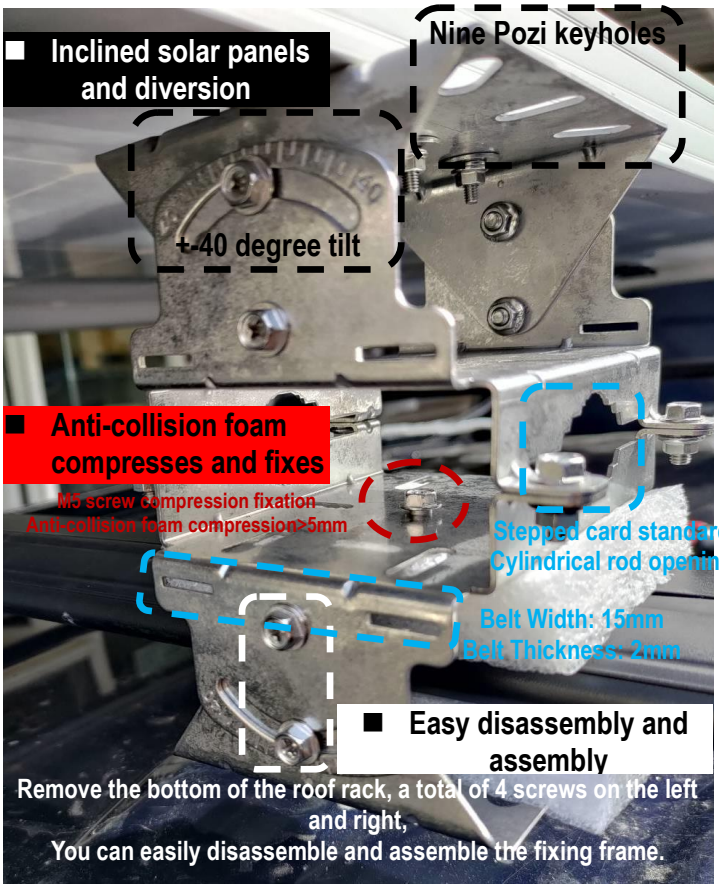
F. Compression fixing of anti-collision foam: M5 stainless steel screws can be locked at the center of the fixing frame, and the anti-collision foam can be fixed by compression to avoid loosening and falling on the roof rack.

G. Convenient selection of multiple fixing holes: There are 9 fixing holes in the shape of a square for

the fixing method of the solar panel, which can be used in multiple ways.

H. Easy to disassemble and assemble: You only need to remove the 4 screws on the left and right under the roof rack, and then you can easily disassemble the solar panel and the fixing frame; Roof rack cross bar, use the push-pull method, put the solar panel flat on the roof rack bar, lock the screws, and the solar panel erection is completed.





Note 1: The double-layer stacked stainless steel fixing frame has a space of about 50mm between the opening of the stepped cylindrical rod and the upper layer. It can be used for placing camp posts or hanging other camping objects or solar panel wiring arrangement.

Note 2: For the double-layer stacked stainless steel fixing frame, if the height limit of the parking lot is low, one layer of the fixing frame can be removed to meet the usual height of the parking lot.

>> Toyota RAV4 + roof rack + double-layer stacking bracket = the total height is about 1880mm.

>> Toyota RAV4 + roof rack + single-layer fixed frame = the total height is about 1830mm.

Note 3: For some holes without screw teeth, elastic washers or washer nuts can be added to avoid the loosening of related screws during driving vibration, which will cause the danger of driving on expressways.

■ Illustration of the main parts and accessories of the stainless steel fixing frame:

1. Single group single layer fixing frame: (height 75mm)

A. VESA international standard stainless steel mount * 1 Pcs.

B. M5 * 12mm stainless steel screws * 10 Pcs.

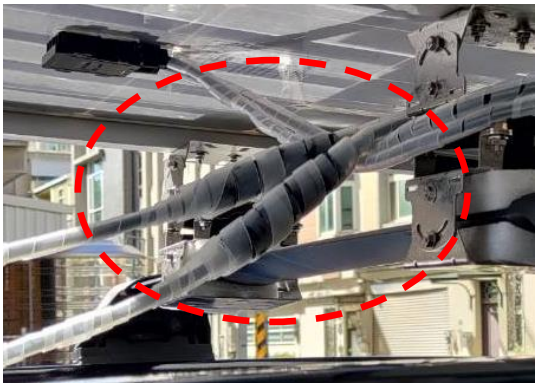
C. M5 nut with spacer * 3 Pcs.

(Lock the metal frame of the solar panel, if the hole position cannot be matched, please drill the corresponding hole in the frame)

D. Length 100mm * Width 65mm * Height 25mm Anti-collision foam * 2 Pcs.

E. Hot-melt waterproof tape for outdoor use * 1 Pcs

(It can be cut into 2-4 sections, and the positive and negative poles of the solar panel are connected for waterproof protection; The hot-melt tape can be stretched and extended 2-6 times in length for multiple layers of interactive coverage, and finally melts into one layer.)

1. Two sets of double-layer stacking brackets: (height 150mm)

A. International VESA standard stainless steel mount * 2 Pcs.

B. M5 * 12mm stainless steel screws * 20 Pcs.

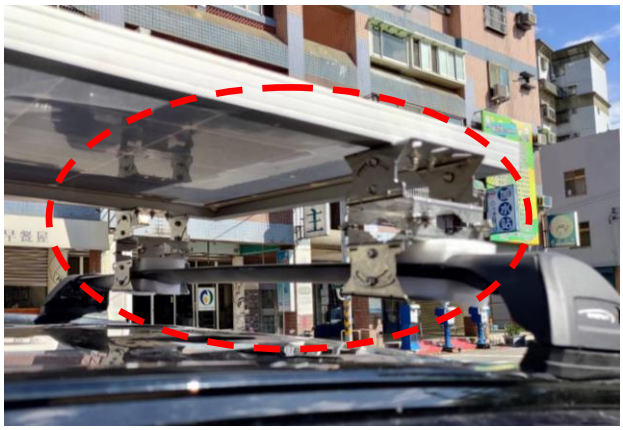
C. M5 nut with spacer * 7 Pcs.

(Lock the metal frame of the solar panel. If the holes cannot be matched, drill holes corresponding to the frame; purchase elastic gaskets if necessary)

D. Length 100mm * Width 65mm * Height 25mm Anti-collision foam * 2 Pcs.

E. Hot-melt waterproof tape for outdoor use * 1 Pcs.

(It can be cut into 2-4 sections, and the positive and negative poles of the solar panel are connected for waterproof protection; The hot-melt tape can be stretched and extended 2-6 times in length for multiple layers of interactive coverage, and finally melts into one layer.)



■ Stainless steel fixing frame, price model: FOB Taiwan, freight is excluded.

(Camping friends recommends commercialization, to solve the problem of not being able to buy it!!)

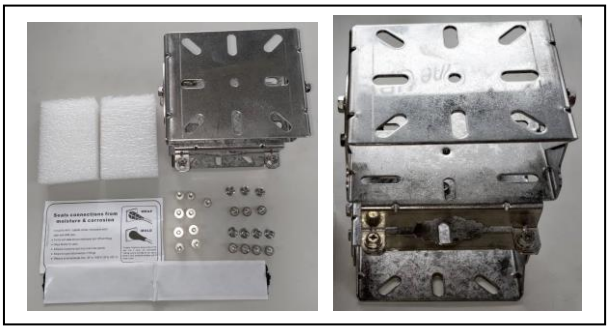
1. Single group single layer fixing frame:

A. Group 1: 23 USD

B. Group 2: 40 USD

C. Group 3: 57 USD

D. Group 4: 74 USD



2. Two sets of double-layer stacking brackets:

A. Group 1: 40 USD

B. Group 2: 74 USD

C. Group 3: 107 USD

D. Group 4: 140 USD

3. Optional additional price purchase:

A. 2 U-shaped M6 screws (including 4 M6 nuts with washers): 5 USD.

B. 4 pieces of anti-collision foam with a thickness of 2.5mm: 3 USD.

C. 1 piece of hot-melt waterproof tape for outdoor use: 2 USD.

D. 5 pieces of M5 * 12mm stainless steel screws: 2 USD.

E. 5 pieces of M5 * 20mm stainless steel screws: 2 USD.

F. 10 pieces of M5 nuts with spacers: 1USD

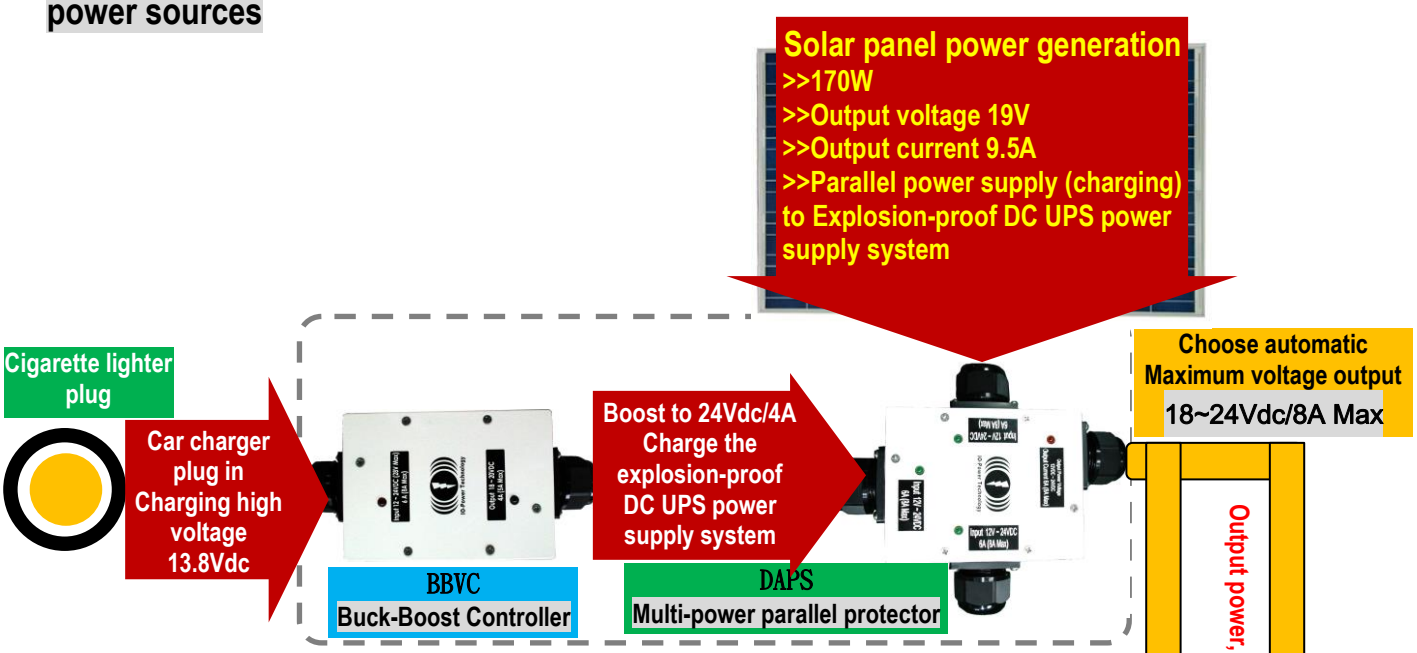
G. 12 pieces of M5 elastic spacers: 1USD

■ U-shaped M6 screw set

For special installation on the roof rack, Optional purchase;

■ Continuation: "Cigarette lighter in the compartment after the car is started" car charger + "vehicle solar panel" charging system verification!!

■ System architecture for automatic selection of parallel charging scheme for multiple solar power sources



Buck-Boost Controller:

1. Cigarette lighter (car charger) input 12-24Vdc/8A to BBVC
2. Output 24Vdc/4A power supply to DAPS parallel protector
3. The output power source is automatically selected by the DAPS parallel protector.
(Multiple parallel input power supplies, select the highest voltage priority input)

DAPS Multi-power parallel protector:

1. Input 12-24Vdc
2. Output 8A max
3.3 groups of power input, parallel output 12-24Vdc/8A Max
4.1 groups of power output (automatically select the highest voltage priority output)
5. Parallel input power supply adopts independent isolation protection
6. DAPS can be connected in parallel to expand the input power mode to ensure the safety of the output power.

■ Diagram of the actual rear compartment erection