



NOVORAY



*Energy
Products
Catalog*

Seize the Solar Energy...

NovoRay

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Solar Power Solutions

On-Grid Power Solution

- ✓ The On-Grid solar power systems are the simplest and least expensive to set up. All that is included is the PV array, an inverter, AC service entrance and utility meter. Your system is connected to the grid, with or without battery back-up.



Off-Grid Power Solution

- ✓ The Off-Grid solar power system has no tie-in to the electricity grid. Batteries are required as part of the system in order to store excess energy.



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INVERTERS

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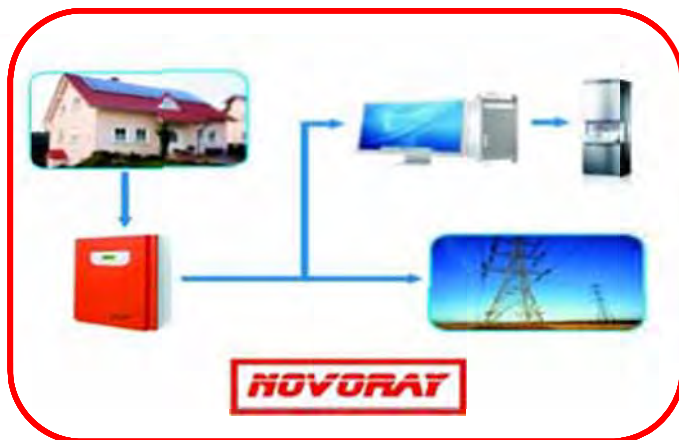


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Single Phase Isolated PV On-Grid Inverter

Characteristics

- **Excellent Maximum Power Control Method:** Adopt DSP control technology, realize rapid MPPT control method, and make wide solar input voltage range, with superior adaptability.
- **Green Energy with Full Sine Current Input to Grid:** Adopt grid tracking technology, make grid power factor above 0.95, and cause no harmonic pollution to grid.
- **DC Input Over-Voltage Alarm & Protection Function:** When DC input voltage is higher than over-voltage point or lower than invertible voltage point, the inverter will automatically shutdown and protection, output security relay disconnect without absorbing grid power.
- **Automatic Load Limit Function:** When equivalent power output feedback to grid exceeds 105% of rated loading, inverter DSP control will automatically limit maximum output loading power to protect the equipment effectively.
- **Islanding Protection Function:** Adopt active islanding protection design to satisfy islanding protection time requirement of on grid power supply.
- **Wide Temperature Range:** Normal operation within range of -25°C-- +55°C



Technical Specification

Model Name Parameters	SPI1500-A	SPI2000-A	SPI3000-A	SPI4000-A	SPI5000-A	SPI6000-A
Input Data						
Max. DC Input Power (W)	1650	2200	3300	4400	5500	6600
Max. DC Input Voltage (VDC)	450				600	
Max. DC Input Current (A)	6	8	12	16	20	24
MPPT Voltage Range (V)	200~420				287~580	
Max. No. of String	2		3		4	
Output Data						
Rated AC Output Power (W)	1500	2000	3000	4000	5000	6000
Rated AC Voltage (Single Phase) (V)	220Vac~240Vac					
Rated AC Frequency (Hz)	50Hz					
Total Harmonic Distortion	≤ 3% (At full load operation)					
Power Factor	>0.99 (At full load operation)					
Efficiency						
Max. Efficiency	≥ 94%					
Europe Efficiency	≥93%					
Others						
Protection Level	Control part: IP65; Heat part: IP54					
Operating Ambient Temperature	-25°C~+55°C					
Operating Ambient Humidity	0~95%					
Protection	DC over-voltage protection, Under-voltage protection, Over temperature protection Output over-voltage protection, Anti-islanding protection					
Reference Dimension (W x D x H) (mm)	480×410×220		385×520×250		480×620×280	
Reference Weight (Kg)	28		42		66	
Communication Port	RS232/RS485					

* We reserve the right of modifying specification and appearance.

Single Phase Non-Isolated PV On-Grid Inverter

Characteristics

- **Excellent Maximum Power Control Method:** Adopt DSP control technology, realize rapid MPPT control method, and make wide solar input voltage range, with superior adaptability.
- **Green Energy with Full Sine Current Input to Grid:** Adopt grid tracking technology, make grid power factor above 0.95, and cause no harmonic pollution to grid.
- **DC Input Over-Voltage Alarm & Protection Function:** When DC input voltage is higher than over-voltage point or lower than invertible voltage point, the inverter will automatically shutdown and protection, output security relay disconnect without absorbing grid power.
- **Automatic Load Limit Function:** When equivalent power output feedback to grid exceeds 105% of rated loading, inverter DSP control will automatically limit maximum output loading power to protect the equipment effectively.
- **Islanding Protection Function:** Adopt active islanding protection design to satisfy islanding protection time requirement of on grid power supply.
- **Wide Temperature Range:** Normal operation within range of -25°C--+55°C



Technical Specification

Model Name Parameters	SPI1500-B	SPI2000-B	SPI3000-B	SPI4000-B	SPI4600-B
Input Data					
Max. DC Input Power (W)	1800	2400	3500	4600	5200
Max. DC Input Voltage (VDC)	500				
Max. DC Input Current (A)	9	11	14	18	20
MPPT Voltage Range (V)	150~450				
Max. No. of String	1		2		
Output Data					
Rated AC Output Power (W)	1500	2000	3000	4000	4600
Rated AC Voltage (Single Phase) (V)	230				
Rated AC Frequency (Hz)	50/60Hz				
Total Harmonic Distortion	≤ 3% (At full load operation)				
Power Factor	>0.99 (At full load operation)				
Efficiency					
Max. Efficiency	≥ 96.5%				
Europe Efficiency	≥96%				
Others					
Protection Level	IP65				
Operating Ambient Temperature	-25°C~+55°C				
Operating Ambient Humidity	0~95%				
Protection	DC over-voltage protection, Under-voltage protection, Over temperature protection, Output over-voltage protection, Anti-islanding protection				
Reference Dimension (W x D x H) (mm)	410x510x150				
Reference Weight (Kg)	24				
Communication Port	RS485				

* We reserve the right of modifying specification and appearance.

Three Phase Isolated PV On-Grid Inverter

Characteristics

- Digital DSP control.
- MPPT control, track maximum output power of PV panels in time.
- Sine wave output, automatically synchronize with grid, with small content of current harmonics, without pollution and surge to grid.
- Disturbance detection technology, realize anti-island protection.
- Perfect protection function, high reliability.
- LCD touch-screen display.
- Data communication through RS232 or RS485 port of computer to realize monitoring of operation status.
- Maximum conversion efficiency could achieve 95%.





Technical Specification

Model Name Parameters	SPI50K-A	SPI100K-A	SPI250K-A	SPI500K-A
Input Data				
Max. DC Input Power (KW)	55	110	275	550
Max. DC Input Voltage (VDC)	900		880	
Max. DC Input Current (A)	120	240	580	1135
MPPT Voltage Range (V)	470~850		450~820	
Output Data				
Rated AC Output Power (KW)	50	100	250	500
Rated AC Voltage (Three Phase) (V)	400錯			
Rated AC Frequency (Hz)	50/60Hz			
Total Harmonic Distortion	<3%		<3%	
Power Factor	>0.99 (At full load operation)			
Efficiency				
Max. Efficiency	98.6%	98.6%	97%	98.1%
Europe Efficiency	97.6%	97.6%	96.5%	97.6%
Others				
Protection Level	IP20			
Operating Ambient Temperature	-20°C~+50°C			
Operating Ambient Humidity	0~95%			
Protection	DC over-voltage protection, Under-voltage protection, Over temperature protection, Output over-voltage protection, Anti-islanding protection			
Reference Dimension (W x D x H) (mm)	440x232x585	800x1000x2100	2200x800x2120	2600x800x2120
Reference Weight (Kg)	40	1000	2000	1800
Communication Port	RS485			

* We reserve the right of modifying specification and appearance.

Single Phase Off-Grid Inverter (With Transformer)

(10kva above can be customized)

Characteristics

- Advanced IGBT module with high reliability.
- Realize various intelligent control functions basing on DSP full digital control technology.
- Perfect protection function, higher system reliability.
- Data communication through RS232 or RS485 port of computer to realize monitoring of operation status.
- Aesthetic appearance, functional integrity, friendly human-machine interface
- Equipped with output isolation transformer





Technical Specification (10kva above can be customized)

Model Parameters	SPO 700-A	SPO 1000-A	SPO 2000-A	SPO 3000-A	SPO 6000-A	SPO 10000K-A
DC Input Data						
Rated DC Input Current (A)	44	36	36	55	25	41
Rated DC Voltage (VDC)	12	24	48	48	192	192
DC Voltage Range (VDC)	9.9~14.3	21.0~28.6	42~57.2	42~57.2	175~224	175~224
AC Output Data						
Rated AC Output Power (VA/W)	700/420	1000/700	2000/1400	3000/2100	6000/4200	10000/7000
Rated Output Voltage (V)	220±10%	220/230/240±2%			220/230/240±2%	
Rated Output Frequency (Hz)	50±0.5%	50±0.1%			50±0.5%	
Harmonic Distortion	no data	THD<3 (Linear Load)				
Power Factor	0.6	0.7				
Overload Capacity	110%~125% for 30s >125% % for 3 seconds	>120% for 1min; >150% for 1s			>105% for 10min; >125% for 1min	
Inverter Efficiency	>80%	>80%	>80%	>80%	>89%	
Peak Factor	no data	3:1				
Others						
Protection Level	IP20					
Operating Ambient Temperature	0°C~ +40°C					
Operating Ambient Humidity	0~90%	0~95%				
Reference Dimension (W x D x H) (mm)	120 x395 x220	156 x450 x220	198x525x347		255x565x500	
Reference Weight (Kg)	8	13	26	30	45	83
Communication Port	RS232					

* We reserve the right of modifying specification and appearance.

Single Phase Off-Grid Inverter (Transformerless)

(10kva above can be customized)

Characteristics

- Advanced IGBT module with high reliability.
- Realize various intelligent control functions basing on DSP full digital control technology.
- Perfect protection function, higher system reliability.
- Data communication through RS232 or RS485 port of computer to realize monitoring of operation status.
- Aesthetic appearance, functional integrity, friendly human-machine interface





Technical Specification (10kva above can be customized)

Model Parameters	Name	SPO 1000-B	SPO 2000-B	SPO 3000-B	SPO 6000-B	SPO 9000-B	SPO 12000-B
DC Input Data							
Nominal DC Input current (A)		18	36	50	100	150	200
Nominal DC Voltage (VDC)		48					
DC Voltage Protection Point (VDC)		43~60					
DC Voltage Starting Range (VDC)		46~56					
AC Output Data							
Rated AC Output Power (VA/W)		1000	2000	3000	6000	9000	12000
Rated Output Voltage (V)		220/230/240±1%					
Rated Output Current (A)		4.5	9.0	13.6	37.3	40.9	54.5
Rated Output Frequency (Hz)		50±0.5%					
Harmonic Distortion		THD<3 (Linear Load)					
Power Factor		0.8					
Overload Capacity		105%-125% for 10 minutes; 126%-150% for 1 minute					
Inverter Efficiency		83%		88%	87%		
Peak Factor		3:1					
Others							
Protection Level		IP20					
Operating Ambient Temperature		0°C~+40°C					
Operating Ambient Humidity		0~95%					
Reference Dimension (W x D x H) (mm)		440x286x1U	435x358x2U		435x380x445	435x380x445	435x380x445
Reference Weight (Kg)		6	7	8.5	32	41	50
Communication Port		RS232 and Dry contact communication					

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CONTROLLERS

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Off-Grid Controller



This product is the PV DC power control system specially designed for 48VDC load and front-end input part of 48VDC input inverter. The aim is to achieve the purpose of green energy by adequate and reasonable storage and application of solar energy with a new kind of power. Input control system is composed of solar array input and battery pack input, manage battery charging and discharging through controller, and provide power to DC loads or to AC loads through inverter. The human-machine interface of this product could detail display the operation parameters and working conditions of each input module, output real-time parameters, PV power generation statistics, various protection functions, LED indicator alarm, and etc.

Technical Specification

Model Name	SPC048060
DC Nominal Voltage (VDC)	48
Maximum Charging Current (A)	60
Maximum Discharging Current (A)	30
Maximum PV Cell Power (KW)	2.88
Solar Panel String No.	6 Strings (2 used, 4 reserved)
Maximum Solar Panel Current of Each String (A)	30
Battery Charging String No.	1
Output Load String No.	2 (including main load and secondary load)
Protection Level	IP20/ IP65
Temperature Compensation Factor (mv/°C)	0~5 settable
Controller Efficiency	≥95%

* We reserve the right of modifying specification and appearance.



Technical Specification (Different DC voltage charger can be customized)

Model Parameters		SPC012010	SPC012020	SPC024020	SPC024030	SPC024050	SPC192016
Rated Current (A)		10	20	20	30	50	16
Rated Voltage (VDC)		12	12	24	24	24	192
Recommended Max. Charge Current (A)		10	20	20	30	50	16
Recommended Max. Discharge Current (A)		10	20	20	30	50	16
Number of Charge Loop		1	1	1	1	2	1
Max. Open Circuit Voltage (V)		25	25	50	50	50	360
Over Charge (V)	Protection	14.4 (settable)		28.8 (factory default)			172.8
	Recover	13.2 (settable)		26.4 (factory default)			211.2
Over Discharge (V)	Protection	10.8 (settable)		21.6 (factory default)			230
	Recover	13.2 (settable)		26.4 (factory default)			213
Load Over Voltage (V)	Protection	17 (settable)		35 (factory default)			280
	Recover	16.5 (settable)		33 (factory default)			264
Charge Method		PWM					MPPT
No Load Current (mA)		10	20	200	300	300	10
First Layer Low Battery Voltage Protection		Standard					
Second Layer Low Battery Voltage Protection		Optional					
Grid Compensate		Optional					
Display Method		Digital Display					
Display Content		Battery Voltage, Battery Current, Load Voltage, Load Current					
Communication Port		RS232					No data
Protection		Overcharge, Overload, Overvoltage, Over-discharge, Short Circuit, Anti-lighting, Prevention of Feedback					
Waterproof Protection		IP20					
Voltage Descent (V)	Between PV Battery and Storage Battery	0.7					≤.707
	Between Storage Battery and Load	0.03					≤.03
Application Ambient Temp. (°C)		-20°C ~ +50°C					
Application Altitude (m)		≤pplic≤pplic					

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SOLAR PANELS

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INSTALLATION HARDWARE

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Junction Box

To reduce connection wire between PV modules and inverter, easy for maintenance and improve reliability, increase DC

junction equipment with advance digital technology between them, to realize monitoring electrical parameters of junction box, and data communication through cable or wireless.



Characteristics

- Equipped with PV dedicated arrestor
- With function of arrestor failure alarm
- Adapt to various communication modules: RS-485, wireless

Technical Specification

Item	Parameters
PV Array Input Voltage	<1000V
PV Array Input String No.	6/8/16 optional
Maximum Current of Each String	10A
Protection Level	IP65
Maximum Altitude	<2000m
Ambient Temperature	-25°C~+55°C
Storage Temperature	-40°C~+70°C
Relative Humidity	<95%
Communication Mode	RS-485, wireless

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ANTAI Mounting System



Antai system
Flush Tile system



**For all
roof type**

Flush Tile

The revolutionary mounting system for tile roofs

Antai's Flush Tile system offers an economical and versatile option for residential PV installations. With innovative ATRack Rail, T-module and full line of stainless steel roof hooks, enable significantly faster, easier installations, delivering time and cost effective experience to your solar system installers.

BENEFITS

• **Fastest**

As the largest racking manufacturer in China, we offer the shortest delivery time to meet our customer request.

• **Wide range of choice**

Compatible with all Module Types
Various aluminum rails optional suit for Australia / Europe / America PV markets
Various Hammer™ Hook available suit for different tile types
Silver and black anodized rack optional

• **Easy Installation**

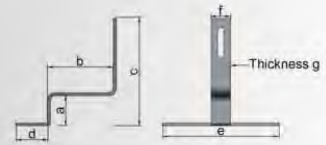
The T-module can be put into the extrudes rail from any section.
Pre-assembly components

• **10 years warranty and 25 years service life**

TECHNICAL DATA

● PV modules	Suitable for all standard module types
● Module Orientation	Portrait or landscape
● Material	High class aluminum alloy Stainless steel 304
● Field of application	Pitched tile roof
● Roof slope	Up to 60deg
● Max Wind Speed	Up to 60 m/s
● Snow Load	Up to 2.0 kn/m²
● Warranty	10 years warranty

AU series roof anchor



- Material:Stainless steel 1.4301
- Choose according to the weather condition
- Including wooden screw / T-bolt
- * Please advise me the material of batten before purchasing

AU001

Pantile Roof Hook/Anchor

a	b	c	d	e	f	g
46	101	166	50	180	30	5



AU002

Pantile Roof Hook/Anchor 2#

a	b	c	d	e	f	g
30	101	166	50	30	30	5



AU003

Pantile Roof Hook/Anchor 3#

a	b	c	d	e	f	g
46	70	166	50	180	30	5



AU004

Adjustable Tile Roof Hook/Anchor 1#

a	b	c	d	e	f	g
38-50	101	158-170	55	140	30	5



AU005

Adjustable Tile Roof Hook/Anchor 2#

a	b	c	d	e	f	g
42-62	101	162-182	50	180	30	5



AU006

Plain Tile Roof Hook/Anchor

a	b	c	d	e	f	g
30	190	166	80	30	30	5



AU007

Slate Tile Roof Hook/Anchor

Length	Height	width	Thickness
200	120	30	5



Hanger bolt series

AU10200

M10*200

AU12250

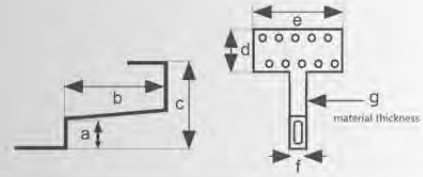
M12*250

AU12300

M12*300



EU series roof anchor



- Material:Stainless steel 1.4301
- Choose according to the weather condition
- Including wooden screw / T-bolt
- * Please advise me the material of batten before purchasing

EU001

Pantile Roof Hook/Anchor

a	b	c	d	e	f	g
45	120	135	50	180	30	5



EU004

Adjustable Tile Roof Hook/Anchor 1#

a	b	c	d	e	f	g
45	120	110-140	50	180	30	5



EU005

Adjustable Tile Roof Hook/Anchor 2#

a	b	c	d	e	f	g
38-50	240	95-135	55	140	30	5



EU006

Plain Tile Roof Hook/Anchor

a	b	c	d	e	f	g
40	260	132	60	30	30	5



EU007

Slate Tile Roof Hook/Anchor

Length	Height	width	Thickness
245	75	30	5



Hanger bolt series

EU10200

M10*200

EU12250

M12*250

EU12300

M12*300



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Aluminum--all for solar



Antai system

JHN wire management system

JHN wire management system

Fit nicely with horizontal rails to keep wires secure



Cable Clips

- Holding 1 to 4 wires.
- Durable PA plastic with UV inhibitor.
- Press it into the rail channel without any tools.



Antai JHN wire management system

The integrated approach enhances performance, durability, in efficiency and aesthetics.



- Seamless Integration
- Installation efficiency + 30% faster
- Lower Cost + Higher Quality
- Superior Wire Protection

1 Antai JHN wire rail

2 JHN rail cap

3 JHN rail connector

4 Clamp



Option:
Black PVC
Nature aluminum

● PV modules	Suitable for all standard module types
● Fuction	UV-Proof / High temperature, cold-resistant
● Material	AL6005-T5 UPVC
● Color	Nature / Black
● Field of application	Roof or ground
● Warranty	10 years warranty

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Aluminum--all for solar



Antai system
PVTilt system



PVTilt system

The revolutionary mounting system for pitch or flat roofs

- Compatible with all Module Types
- Compable with all Blue Morpho™ clamp
- Compable with L-foot and standoff
- 10-15° / 15-30°/30-60° optional



Compatible with all Blue Morpho™ clamp



TECHNICAL DATA

● PV modules	Suitable for all standard module types
● Module Orientation	Portrait or landscape
● Material	High class aluminum alloy Stainless steel 304
● Field of application	Pitch roof or flat roof
● Roof slope	10-15deg, 15-30deg and 30-60deg optional
● Max Wind Speed	Up to 60 m/s
● Snow Load	Up to 1.4 kn/m²
● Warranty	10 years warranty

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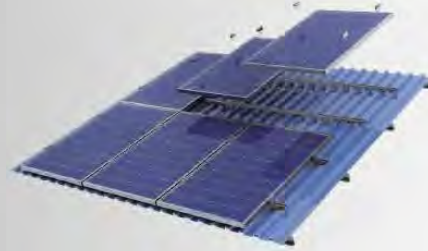
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Aluminum--all for solar



Antai system
FlatRail & MiniRail

For metal roof



FlatRail

The fastest mounting system for trapezoidal metal roof



Flatclip

- **Compatible with all Module Types: frame or unframe**
- **Quick Installation**
- **Wire management function**
- **compatible with T-wind system as distribution beam**
- **High-quality materials - for long service life**



MiniRail

MiniRail is a simplest solution for the fastening of modules to trapezoidal sheet and sandwich roofs.

- **The 40 cm long rail profile**
- **EPDM rupper pad**
- **Sheet metal roof screw**

TECHNICAL DATA

● PV modules	Suitable for all standard module types
● Module Orientation	Portrait or landscape
● Material	High class aluminum alloy Stainless steel 304
● Field of application	metal roof
● Roof slope	Up to 60deg
● Max Wind Speed	Up to 60 m/s
● Snow Load	Up to 2.0 kn/ m ²
● Warranty	10 years warranty

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Aluminum--all for solar



Antai system
T-wind system

For flat roof



T-wind

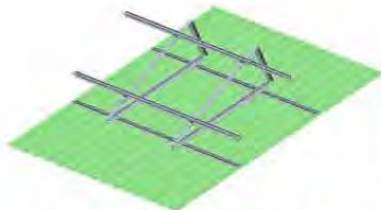
The revolutionary mounting system for flat roof



Adjustable!



Fixed!



Distribution beams

- **Compatible with all Module Types**
- **Fixed or adjustable tripod bracket optional**
- **Easy Installation**
- **Enforcing brace optional**
- **Compatible with all Blue Morpho™ clamps for metal sheet roof**
- **High-quality materials - for long service life**

In some cases, the triangular supporting frames can be directly mounted to the roof battens. If the distance between roof beams is big, or the snow load is potentially high, resulting in huge stress on both triangular supporting frames and rails. For bridging big distances between battens, Antai provides FlatRails which can be used as distribution beams.

TECHNICAL DATA

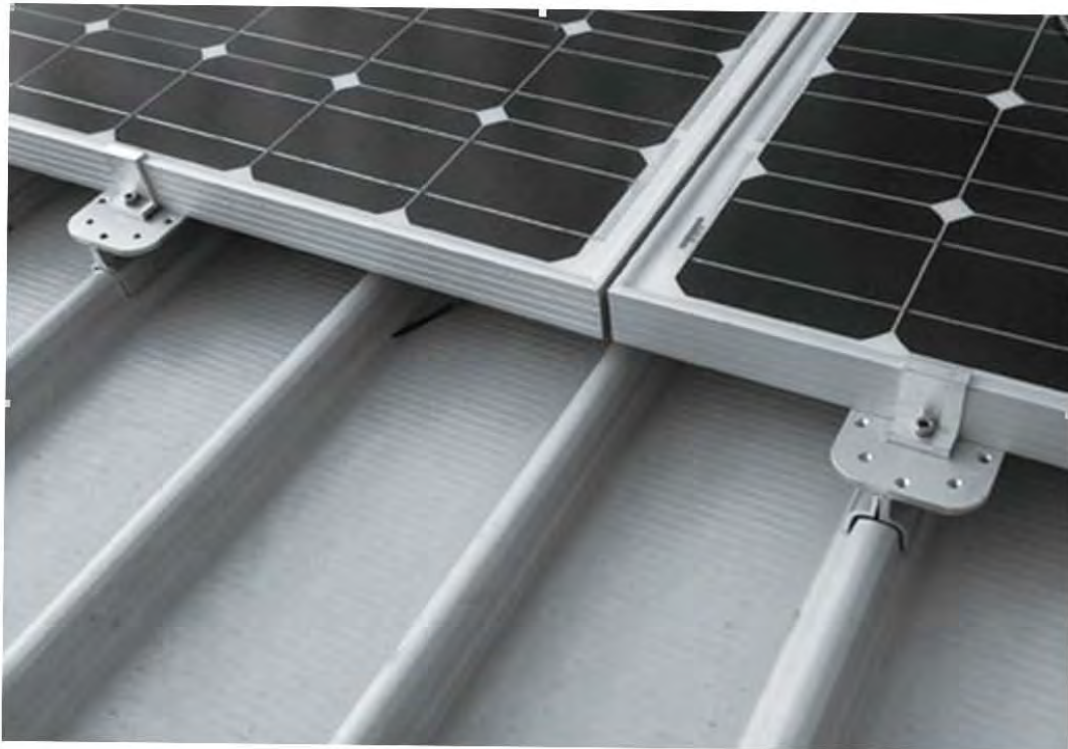
● PV modules	Suitable for all standard module types
● Module Orientation	Portrait or landscape
● Material	High class aluminum alloy Stainless steel 304
● Field of application	Flat roof, metal roof
● Roof slope	Up to 60deg
● Max Wind Speed	Up to 60 m/s
● Snow Load	Up to 2.0 kn/m ²
● Warranty	10 years warranty

Seize the Solar Energy...



P.O. Box 6247, Laguna Niguel, CA 92607 ; Office: (949) 331-9600; Fax: (949) 331-9601; E-Mail: sales@novoray.net

Aluminum--all for solar



Antai system
Blue Morpho System

For metal roof



Blue Morpho

The revolutionary mounting system for metal roof

ANTA Blue Morpho™ System is engineered for the maximum flexibility possible in designing and planning for the commercial and residential roof solar system.

BENEFITS



With the rail !



without the rail !

- **Compatible with all Module Types: frame or unframe**
- **All Blue Morpho™ clamps available**
- **Easy Installation**
- **Compatible rail or without rail**
- **High-quality materials - for long service life**

The Blue Morpho™ clamp

includes a broad Clamp attachment series, fastening series and clamps made in accordance with the client's requirements from quality stainless steel 1.4401 or aluminum 6063-T5, which are used for fastening solar devices on any kind of metal roofs, such as Kal-zip roof, Zambelli roof, Klip-lok and stand seam roof, trapezoid sheet roof or corrugated fibre roof.

TECHNICAL DATA

● PV modules	Suitable for all standard module types
● Module Orientation	Portrait or landscape
● Material	High class aluminum alloy Stainless steel 304
● Field of application	metal roof
● Roof slope	Up to 60deg
● Max Wind Speed	Up to 60 m/s
● Snow Load	Up to 2.0 kn/m ²
● Warranty	10 years warranty

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Aluminum--all for solar



Antai system
Blue Morpho™ Clamps

Blue Morpho™ Clamps



BM-K003

Al6005-T5
Blue Morpho™ K clamp
Suitable for
—Kaizip or Bemo



BM-S002

Al6005-T5
Blue Morpho™ S clamp 2#
Suitable for
—stand seam roof



BM-KL700

Al6005-T5
Blue Morpho™ Klamp 700
Suitable for
—Bluescope kl maxima
—Bluescope klip-lok 700
—Fielders kinglip 700



BM-KL406

Al6005-T5
Blue Morpho™ Klamp 406
Suitable for
—Bluescope klip-lok 406
—Stratco Topdek 700
—Stramit Speed Deck 500



BM-S001

Al6005-T5
Blue Morpho™ S clamp 1#
Suitable for
—stand seam roof



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Aluminum--all for solar



Antai system
Alu-terrain System

100%
ecological
aluminum



Alu-terrain **The revolutionary mounting system for open area**

The Alu-terrain system belong to the Antai Alu-rac systems family, which developed for large commercial and utility solar projects on open areas, suitable for both framed and unframed modules. The components is all made of 100% economical aluminum material, the simply structure but good mechanical properties, is a good replacement of traditional material ground racks (hot dip galvanized steel).--Our mission is to simplify your installation and ensure the structure safety.

BENEFITS

● **Ecological**

100% ecological aluminum, easily recyclable

● **Easy Installation**

Highly integrated(6 components in all) reduce the difficulty of the installation work.

● **High pre-assembly**

High pre-assembly in manufacturer to easy you installaion work, and reduce the trasportation cost.

● **Widely applicable**

Ground screw or concrete foundation for your choice

TECHNICAL DATA

● Material	Fastening elements, bolts: High-grade steel 1.4301 Profiles: Aluminum6005-T5
● Installation Site	Open Field For framed and unframed modules
● Construction	Portrait or Landscape Concrete foundation or Ground screw
● Logistics	High pre-assembly in manufacturer Pallets package conveniently for storage and trasportation
● Warranty and duration	10 years and 25years durations Each batch of racks will be offered Antai "Quality warranty card"

Seize the Solar Energy...



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Aluminum--all for solar



Antai system
Alu-pile system

Fast
pre-assembly
Economical



Alu-pile

The revolutionary mounting system for open area

The Antai Alu-pile ground mounting system is designed to provide an economic and practical mounting solution for large-scale open areas, and are suited to almost all agricultural conditions, suitable for both framed and unframed modules. Our mission is to simplify your installation and ensure the structure safety.

BENEFITS

- **Compatible with all Module Types**
- **Easy Installation**

Highly Pre-assembly for faster installation in the field
Light weight and strong
Compatible for hydraulic pile driving ram, and installed on the open area easy

- **High-quality materials - for long service life**

TECHNICAL DATA

● Material	Fastening elements, bolts: High-grade steel 1.4301 Profiles: Aluminum6005-T5 Pile-driven foundations: hot-dip galvanized steel
● Installation Site	Open Field (no sandy)
● Construction	For framed and unframed modules Portrait or Landscape
● Logistics	High pre-assembly in manufacturer Pallets package conveniently for storage and transportation
● Warranty and duration	10 years and 25years durations Each batch of racks will be offered Antai "Quality warranty card"

save your time!



* The U-post could be driven into ground 1-2 meters with ram rod easily.

Seize the Solar Energy...



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Aluminum--all for solar



Antai system
UB-Ground system

For open area



UB Ground **The revolutionary mounting system for open area**

Antai UB-Ground System is also optimized for commercial and utility projects ranging from 500 kilowatts to gigawatts and custom designed for each customer's module and site conditions,

BENEFITS

● **High-quality materials - for long service life**

● **Wide range of choice**

Concrete foundation and ground screw optional

● **Easy Installation**

Planning and machining in the manufacturer to save your time and cost.

Reduced number of components for shorter mounting time



Environmentally-friendly mounting system

Antai Knight™ ground screw is not only suitable for natural ground, but also for dense and even tarred surfaces. Maximum quality, quick and reliable installation.

TECHNICAL DATA

● PV modules	Suitable for all standard module types
● Field of application	Open field
● Material	High class aluminum alloy High Galvanized Steel Q235B
● Anticorrosive	Anodized and hot galvanized (>=80um)
● Warranty	10 years warranty 25 years duration

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Aluminum--all for solar



Antai system
Eco-Pole System

Residential ground solution



Eco-pole

The revolutionary mounting system for pitch or flat roof

The Eco-pole System is a residential ground mounting system that comes with all the solar mounting hardware you need to get the installation done! The system is designed to install easily, quickly and provide a secure mounting structure for PV modules on a single pole. The advantage is that it is rather not exposed to vandalism and accumulation of dirt, leaves and snow, and easy to clean.

BENEFITS

- **Easy Installation**

Planning and machining in the manufacturer to save your time and cost.
Reduced number of components for shorter mounting time

- **Wind range of choice**

Directly bury and concrete foundation optional

- **Great Flexibility**

Tilt angle can be adjusted according to your request to ensure optimum module performance.

- **Excellent Duration**

High-quality materials - for long service life

TECHNICAL DATA

● Field of application	Open field
● PV modules	Suitable for all standard module types
● Material	High class aluminum alloy High Galvanized Steel Q235B
● Anticorrosive	Anodized and hot galvanized (>=80um)
● Tilt angle	10-60 degree Customized degree
● Ground connection	Pre-buried bolt, ground screw
● Warranty	Ten years warranty and 25 years duration

FASTEN Mounting System



Fasten Solar 's modeling, structure, material combined we Chinese traditional "sūn and mǎo"principle, offer the freedom and flexibility, along with the speed, ease and low cost of installations. Innovative mounting systems make your solar panel installations faster, easier, more profitable.

It is accredited for use in Australia and New Zealand to meet and exceed wind loading, building structure and structural design sandards, it is rated for all Australian cyclone zones and is suitable for tile and metal roof.Fasten Solar mounting structure meet the highest requirements with regard to technology, quality and reliability. All our systems are made of premium grade aluminium and stainless steel, which guarantees durability, backed with a minimum 10 years warranty and 20 years duration."



▲ Solar Tile Roof



▲ Solar Tin Roof

Design Features

Item No.	Date
Rail A	2560mm, for mounting 3 modules(808mm width)
Rail B	3400mm, for mounting 4 modules(808mm width)
Rail C	4200mm, for mounting 4 modules(992mm width)
Aluminium Grade	AL6063
Temper Designation	T5-Cooled from hot working and artificially aged (at elevated temperature)
Anotized	>=10um(high rate against corrosion)
Installation site:	Residential, commercial, remote area and coastal
Building Height	Up to 200 meters high
Tile Angle	Flushed with the roof up to 60deg
Max Wind Speed	up to 60m/s
Snow Load	up to 1.4KN/M2
Engineer Certificate	Complies with Australian/New Zealand Standard on wind actions,AS/NZS 1172.2:2002



Fasten Rail
Fasten Rail's innovated design and improved frame strength greatly simplify solar panel installation, and the Tilt-in module can be put into the Rail on any position quickly.



L Tin Bracket

The L bracket mounts directly to tin metal roof, and the ESDM rubber pan is able to be water-proof effectly.



Tile Bracket

Designed for tile roof applications, the tile hook mounts directly to roof rafters and is concealed between tiles to ensure water proofing is unaffected.



Middle Clamp

30-50mm Middle clamps available are used to easily secure solar modules together in the array.



End Clamp

30-50mm End clamps available are used to easily secure solar modules together in the array.



Rail Splice kits

Multiple rail installations are aligned and firmly locked together, extending the length of an array.



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L Tin Bracket
The L bracket mounts directly to tin metal roof, and the ESDM rubber pan is able to be water-proof effectly.



Tile Bracket
Designed for tile roof applications, the tile hook mounts directly to roof rafters and is concealed between tiles to ensure water proofing is unaffected.



Middle Clamp
30-50mm Middle clamps available are used to easily secure solar modules together in the array.



End Clamp
30-50mm End clamps available are used to easily secure solar modules together in the array.



Fasten Rail
Fasten Rail's innovated design and improved frame strength greatly simplify solar panel installation, and the Tilt-in module can be put into the Rail on any position quickly.



"sūn and mǎo" Rail Splice kits The concave-convex processing bonding mode, Multiple rail installations are aligned and firmly locked together, the installation is very easily.

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SOFTWARE

Seize the Solar Energy...



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PV Monitoring Software

Characteristics

- Detect AC voltage/current, DC voltage/current, intraday/accumulate power production, fault/status information, battery management/protection, grid frequency, AC power, intraday/accumulate power generation time
- User-friendly interface, easy to operate and manage
- Perfect data processing capabilities to realize functions of event log, data or chart query
- Adaptive system updates, support remote software upgrade



Environmental Monitor

Environmental monitor is used for detecting on-site environmental data of PV station. The system is composed of environmental monitoring box and sensor group. It realizes the environmental parameters measurement like

environmental temperature, component temperature, wind speed, wind direction, total solar radiation, direct radiation, bevel radiation, and etc.

Characteristics

- Industrial sensor with high sensitivity
- Data logging software for real time detection
- Adapt to kinds of environment
- Easy to install
- Customized sensor

NovoRay

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