GOODWE

INSTALLATION MANUAL

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GALAXY SERIES

GOODWE AUSTRALIA PTY. LTD.

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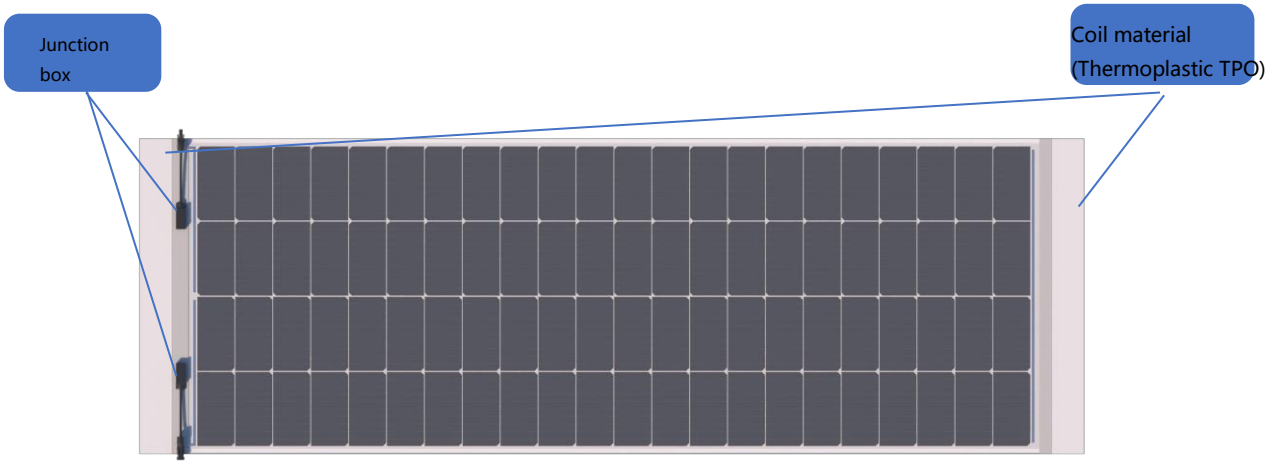
Galaxy* Lightweight Products Construction Manual

2022-06-14

Content

1、Description of the main structure of Galaxy* lightweight products



Galaxy* Lightweight Products Front

Installation Altitude： <2000m

Fire Protection Level：CLASS C

(IEC61730-2-MST23)

Protection Level：Level II

maximum static load: front 5400Pa; back 2400Pa

Coil material is made of thermoplastic TPO membrane.

2、Installation material list

Name	Neutral one-component silicone
Illustration	

3、Installation tools list

3.1 Construction tools list

Tool Name	Steel tape measure	Chalk Line	Utility Knife	Hot air welding gun	Glue gun	Roller
Illustration						

PS：This list only indicates the main tools required for the installation of Galaxy* Lightweight Products structural system, excluding the tools used for the installation of the roof support section and the electrical section.

For the tools of release and installation of roof brackets, you can refer to the preparation of building works.

3.2 Electrical tools list

Tool name	Needle Nose Plier	Wire cutter	Photovoltaic special crimping pliers	Wire stripping pliers	Joint wrench
Illustration					

4、Inspection work of Galaxy* lightweight products before installation

Warning

- Please use insulated tools to reduce the risk of electric shock.
- Please adopt appropriate protective measures (non-slip gloves, work clothes, etc.) to avoid direct contact with 30V DC or higher, and avoid direct contact with sharp edges during installation. Please do not wear metal ornaments during installation to avoid poking through the Galaxy* lightweight products and causing electric shock hazards.
- DO NOT install the product in rainy weather or strong wind.
- DO NOT allow children or unauthorized personnel to approach the installation area or the

storage area of Galaxy* Lightweight products.

- During installation or wiring of Galaxy* Lightweight products, if the circuit breaker and overcurrent protection circuit breaker cannot be turned on or the inverter cannot be turned off, then use an opaque material to cover the array Galaxy* Lightweight products to stop the power output.
- Do not use or install Galaxy* Lightweight products that have been damaged.
- If the surface material is damaged or worn, direct contact with the surface of Galaxy* lightweight products may result in electric shock.
- Do not attempt to repair any part of the Galaxy* Lightweight product.
- The lid of the junction box should be kept closed at all times.
- Do not disassemble, modify, or move any part of the Galaxy* Lightweight product.
- Do not artificially concentrate light on Galaxy* lightweight products.
- It is important to note that only one piece of product can be moved in a single operation when installing the Galaxy* products.
- Installers are advised to consider additional hazards and local regulations relevant to the use of a hot air weld gun including but not limited to welding at height, power cord management, burns risks, restraint system management in the presence of a heat source, and consideration for fumes and vapors, specifically:
  - Always lie the tool on a non-flammable surface & keep the hot air stream well away from combustible materials, including combustible materials hidden behind ceilings, walls, cavities or floors.
  - Do not point the hot air stream at the same spot for extended periods. Incorrect use can cause fire.
  - Do not touch the element housing or nozzle with any part of the body during use as they get very hot and there is a danger of serious injury by burning.
  - When working with plastics, varnish or similar materials vapors/gases/smoke develop which can be harmful.

- Do not breathe in vapors/gasses/smoke as they can be highly toxic.
- Always provide good ventilation of the working area with an extraction system and/or wear a respirator.

Keep the hot air welding unit dry. Do not use in the rain or in damp conditions. Always store the hot air welding unit in a dry place.

 Be careful

- Before installing Galaxy* Lightweight products, the relevant authorities should be contacted to obtain information about the installation site, construction permits or impact on roof warranty, and the requirements for installation and inspection should be observed.
- Check the applicable building codes to ensure that the building and its structure (roof, exterior façade, load bearing, etc.) in which Galaxy* lightweight products are to be installed have adequate load-bearing capacity.
- Ensure that Galaxy* Lightweight products are installed on a fireproof roof, when installing Galaxy* Lightweight products.
- Galaxy* Lightweight products are compliant with Safety Class II. These Galaxy* Lightweight products can be used in systems where the public is likely to be exposed to voltages greater than 50V or power greater than 240W.
- The installation surface should be flat and free of pits or bumps.
- Galaxy* lightweight products must not be installed near flames or combustible objects.
- Galaxy* lightweight products must not be immersed in water (pure or salt water), installed in environments that are permanently wet (pure or salt water) (e.g. fountains, waves, etc.) or in locations where water is likely to accumulate (e.g. potholes, drainage inlets, etc.).
- There is a risk of corrosion if Galaxy* lightweight products are placed in salt spray (i.e., marine environments) or environments containing sulfur (i.e., sulfur-containing sources, volcanoes, etc.).
- Ensure that Galaxy* Lightweight products meet the overall technical requirements of the

system.

- Ensure that other system components do not cause damaging mechanical or electrical performance effects on Galaxy* Lightweight products.
- It is allowed to connect Galaxy* Lightweight products in series to increase the voltage or in parallel to increase the current. When connected in series, the positive terminal of the Galaxy* Lightweight product is connected to the next negative terminal. When connected in parallel, the positive terminal of the Galaxy* Light product is connected to the positive terminal of the next Galaxy* Light product.
- To avoid (or minimize) the mismatch effect of the array, it is recommended to connect Galaxy* Lightweight products with similar electrical properties on the same string.
- To reduce the risk of indirect lightning strikes, the system should be designed to avoid the creation of loops.
- Galaxy* lightweight products should be securely fastened so that they can withstand all possible loads, including wind and snow loads.
- Secondary handling should be avoided as much as possible during the installation of Galaxy* lightweight products.
- Please ensure that the installation location of Galaxy* Lightweight products is free from shading all year round, as shadows can cause a decrease in the power generation of Galaxy* Lightweight products. Hot spots and long-term heat generation from diodes caused by frequent shading of Galaxy* Lightweight products can affect the service life of Galaxy* Lightweight products.

5、Installation work of Galaxy** lightweight products

5.1 Unpacking and stacking (storage and unpacking)

- To ensure the safety of Galaxy* Lightweight products during transportation, it is better to open the packaging box of Galaxy* Lightweight product after reaching the installation site.
- Check whether the box is damaged before unpacking.
- It is advised that unpackers wear non-slip gloves in advance.

- Galaxy* lightweight products should be stored in a dry and ventilated environment.
- Galaxy* Lightweight products must be shipped in the boxes provided by GoodWe and should be stored in the original boxes before installation. Please protect the packaging from damage. Follow the recommended unpacking procedure to open Galaxy* Lightweight product packaging. Careful handling is required during unpacking, transportation and storage.
- DO NOT apply excessive loads or twist Galaxy* Lightweight products.
- DO NOT use wires or junction boxes to carry Galaxy* lightweight product.
- DO NOT stand, climb, walk or jump on Galaxy* Lightweight products.
- DO NOT to allow Galaxy* Lightweight products to come in contact with sharp objects; scratches can directly affect the safety of Galaxy* Lightweight products.
- DO NOT place Galaxy* lightweight products in an environment that is not reliably supported or not fixed.
- Changing the wiring of the bypass diode is prohibited.
- All electrical connectors need to be kept clean and dry.
- Galaxy* lightweight products are not allowed to be stacked flat and the quantity should not exceed 3 pieces. The junction box shall not be in direct contact with the front side.

5.2 checking

- Please check whether the surface of Galaxy* Lightweight products is damaged, if there is damage or wear on the surface of the products, please do not use the product.
- Please check whether the junction box, connectors and cables are damaged , please do not use the product if there is damage.
- Do NOT apply adhesives, paint, label or any other product on the surface of Galaxy* Lightweight products.

5.3 Roof Substrate requirements

- The base layer application scenario includes pitched metal roof and flat roof. and TPO rolls need to be laid on the base layer.
- The roof substrate needs to be covered with TPO material.

5.4 Chalk line Positioning

- Measure the roof and determine the position of Galaxy* lightweight products according to the design drawings.

5.5 Carrying

- To avoid damaging the cells, two people are required to lift the four corners of the Galaxy* Lightweight product (avoiding touching the position of the cells) at the same time when carrying it.
- The downward bending distance of Galaxy* lightweight products should not exceed 300mm. Please carefully position Galaxy into predestined location.
- Galaxy* lightweight products should be carried upright as much as possible when handled manually. Do NOT twist the product during transportation.
- Care is required during the handling of Galaxy* lightweight products to avoid them bumping into the ground or other sharp, hard objects.

5.6 Installation

Note: all installation actions should in line with the requirements of the National Construction Code

Metal roof with TPO membranes.

- Apply structural adhesive to crests of TPO metal roof, with minimum spacing of 400mm. Adhesive cross-section width ≥ 8mm, height ≥ 6mm.
- Carry the product upright by grabbing the corners by two person
- Place the product cell side up to the adhesive area (Figure 1)

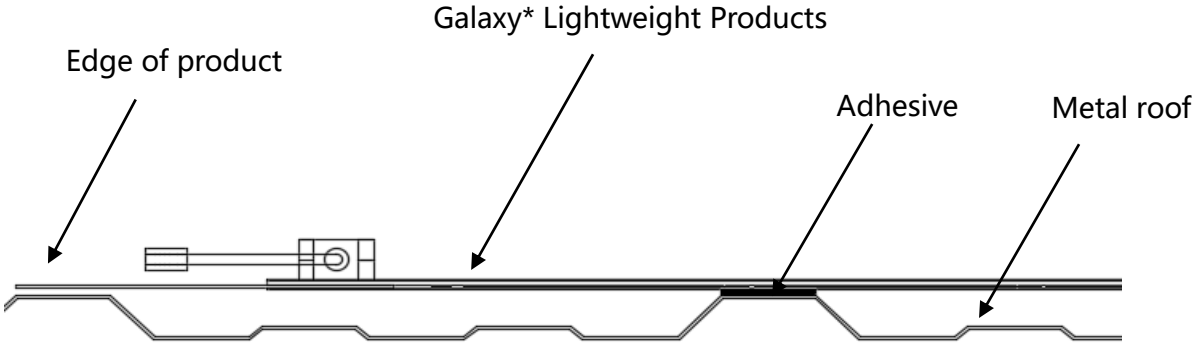


Figure 1

- Gently press the front of the product with a flexible tool so that the Galaxy* lightweight product is firmly bonded to the crest of the metal roof.
- Lift the coil of Galaxy* lightweight products slightly and use the hot air welding gun to spot weld first to fix the Galaxy* lightweight products on the metal roof (as in Figure 2).

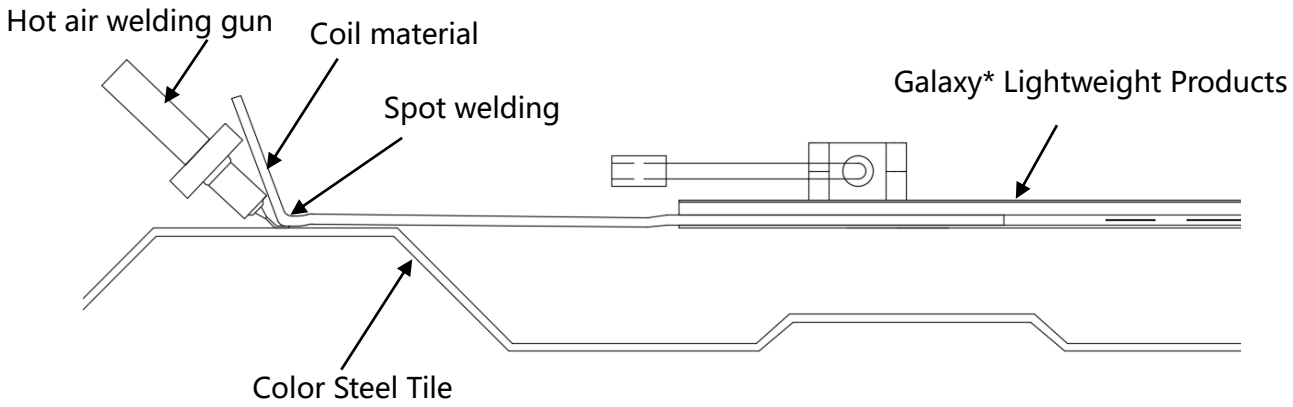


Figure 2

- After fixing the head and tail of Galaxy* lightweight products, use hot air welding gun along the coil for full welding. Use roller gently on the coil for roller pressure (such as Figure 3) when welding to ensure that the coil is welded to flat roof. The effective welding width of the coil ≥ 25mm, the effective welding area of the coil needs to cover in the color steel tile crest or crest slope, if the welding area covers in the color steel tile valley area, it needs to be filled in the valley so that the product is flush along the roof with the crest for effective welding (such as Figure 4, Figure 5).

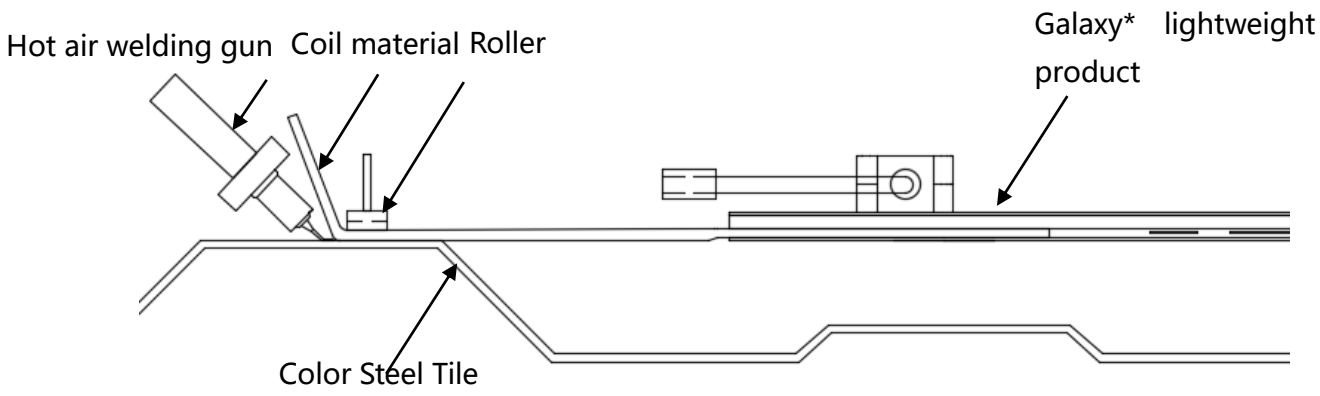


Figure 3

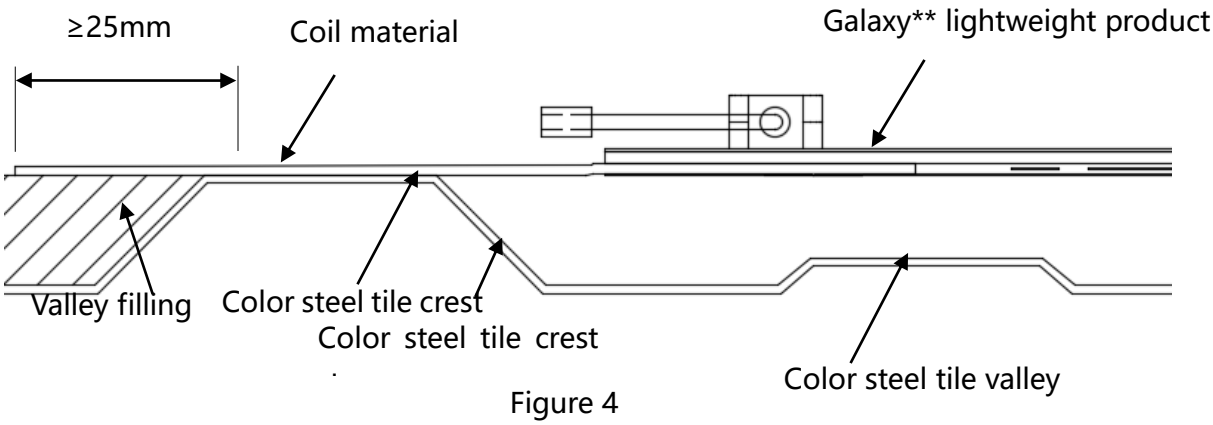


Figure 4

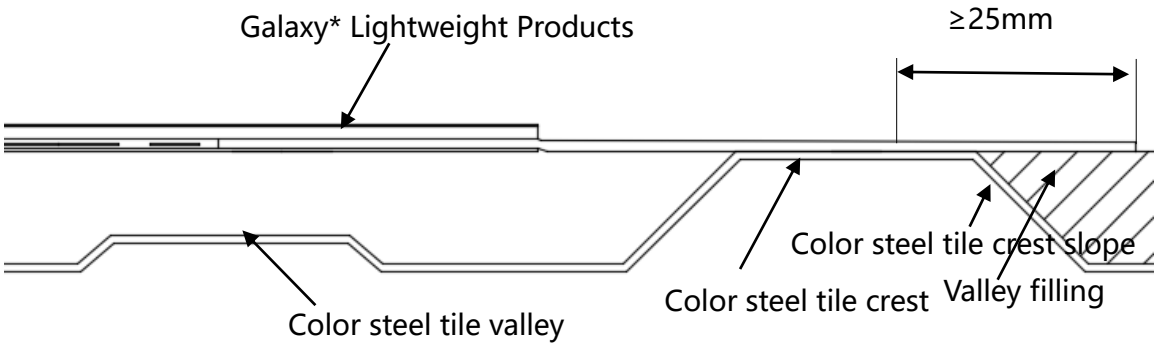


Figure 5

- The distance between two adjacent Galaxy* lightweight products is 30±10mm. A 300mm construction access channel is reserved between two rows of Galaxy* lightweight products on the junction box side. A 170mm construction access should be reserved on the tail side of the product. (Figure 6).

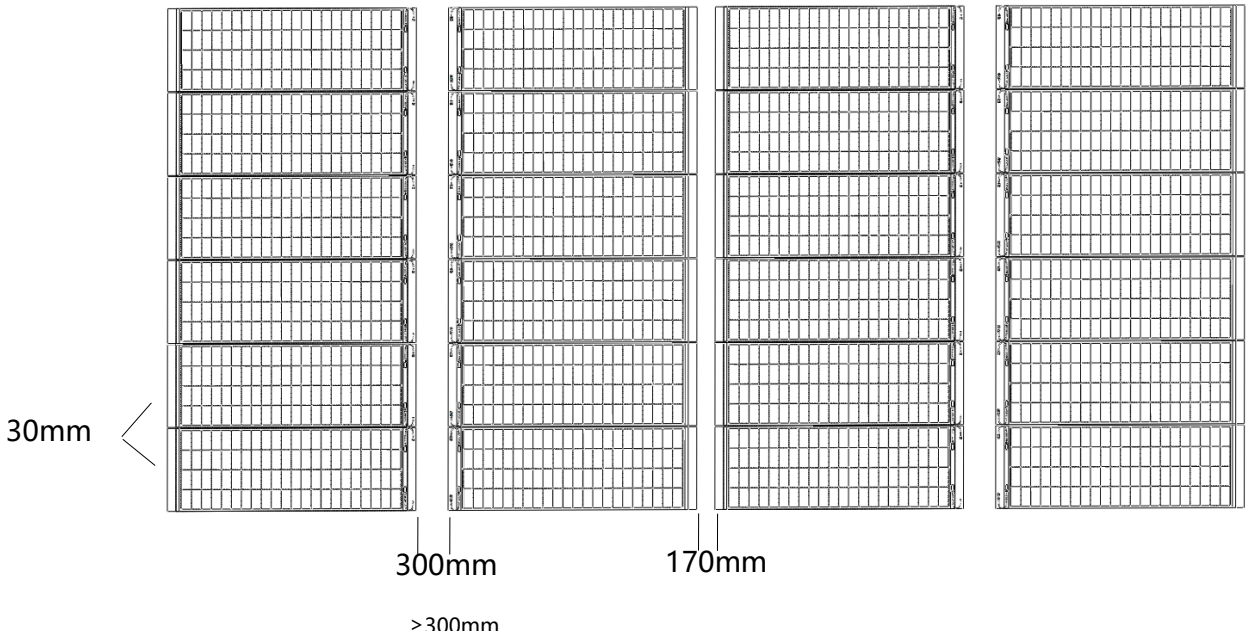


Figure 6

TPO flat roofing installation form:

- Mark the position of the array.
- Apply structural adhesive to the EPDM strips on the back side of the product with a cross-sectional width of at least 8 mm and height of at least 6 mm.
- Two people grip the four corners of Galaxy* Lightweight product, carry them vertically, and then face up to bond the adhesive strip on the back of the products to the flat roof.. Use a flexible tool to gently press the front of the product to fully bond the product to the roof (as in Figure 7).

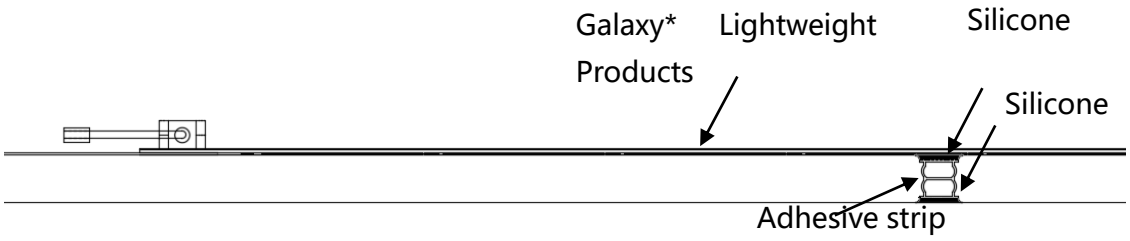


Figure 7

- Lift the Galaxy* lightweight product slightly at both ends of the coil and use a hot air torch to spot weld first to fix the product to the roof (as in Figure 8).

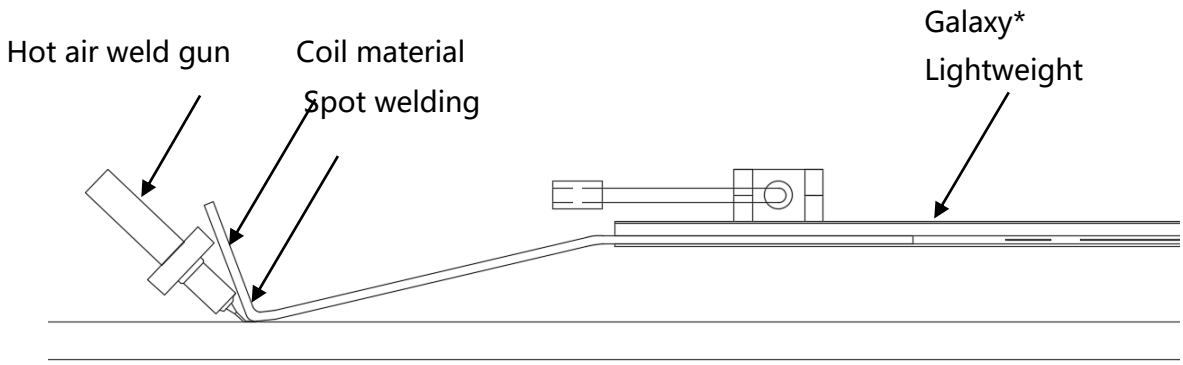


Figure 8

- After fixing the head and coil of the Galaxy* lightweight products, use the hot air welding gun along the coil for full welding. Use rollers gently on the coil roll pressure when welding (as Figure 9) to ensure that the coil secured to flat roofing. The effective welding width of the head and tail coil should be at least 25mm (such as Figure 10, such as Figure 11).
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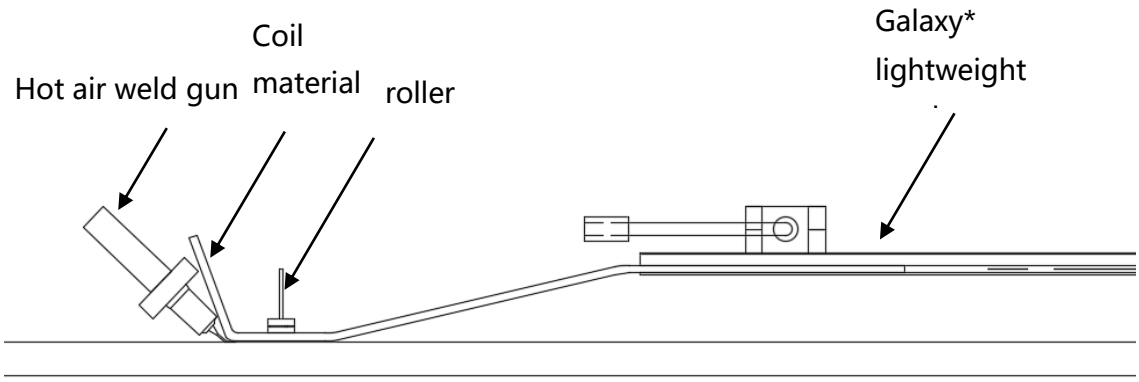


Figure 9

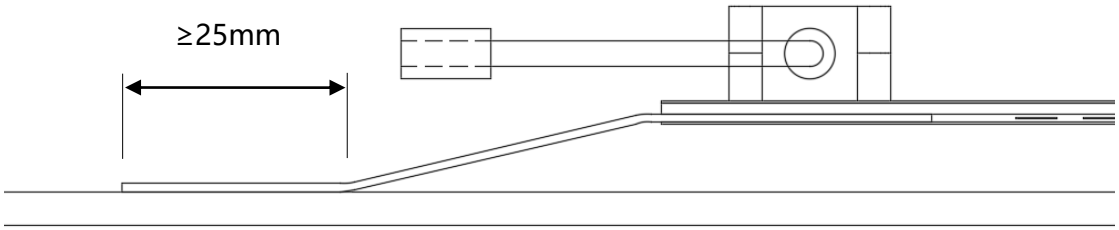
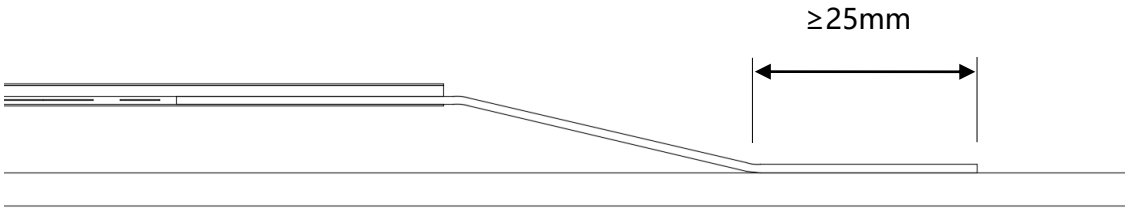


Figure 10



Fgure 11

- The distance between two adjacent Galaxy* lightweight products is 30±10mm. A 300mm construction access channel is reserved between two rows of Galaxy* lightweight products on the junction box side. A 170mm construction access should be reserved on the tail side of the product. (Figure 12).

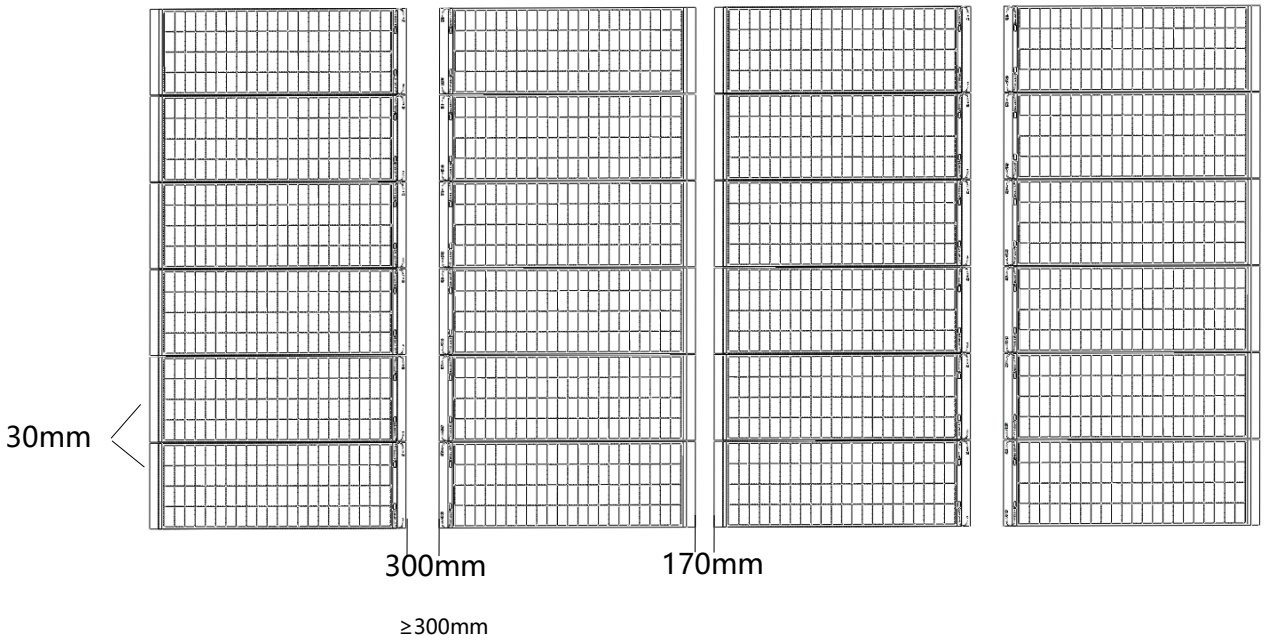


Figure 12

6、Electrical installation

6.1 Electrical performance

The nominal values of electrical performance parameters such as Isc, Voc and Pmax of Galaxy* Lightweight products have an error of ±3% from those under standard test conditions. Standard test conditions for Galaxy* Lightweight products: irradiance 1000 W/m2, cell temperature 25°C, atmospheric mass AM 1.5. When Galaxy* Lightweight products are connected in series, the total voltage is the sum of voltage of every single Galaxy* Lightweight products in the string, and when Galaxy* Lightweight products are connected in parallel, the final current is the sum of the current of every string of Galaxy* Lightweight products, as shown in Figure 6-1. Galaxy* Lightweight products of different electrical performance models should not be connected in one string.

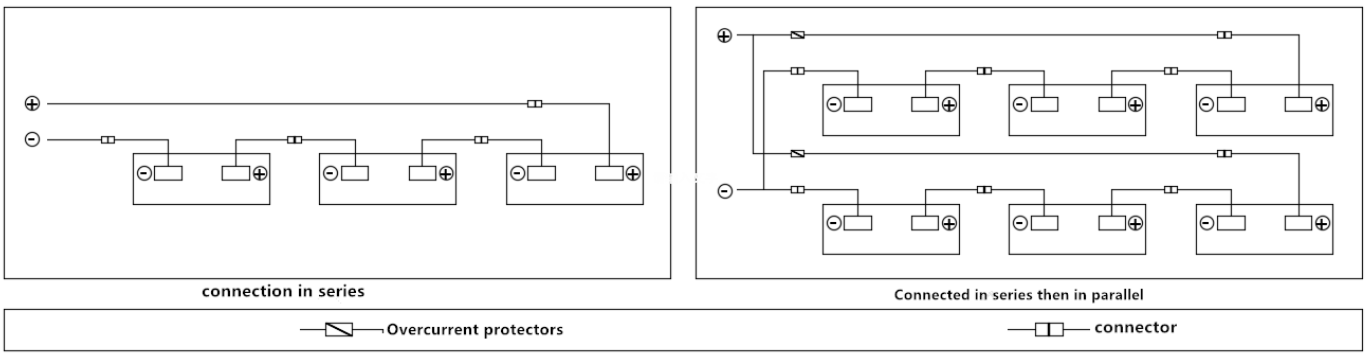


Figure 6-1 Series-parallel electrical diagram

The maximum number of single strings of Galaxy* Lightweight products that can be connected in series must be calculated in accordance with the requirements of local electrical requirements and regulations. and the value of its open-circuit voltage at the lowest expected local temperature conditions must not

exceed the maximum system voltage value specified for Galaxy* Lightweight products (maximum system voltage for the products is DC1000V/DC1500V - the actual system voltage is designed according to the selection of the product models and inverters) and other values required for DC electrical components.

The open circuit voltage correction factor can be calculated with following formula:

CVoc=1-βVoc×(25-T) where T is the minimum ambient temperature expected at the system installation location and β(%/°C) is the temperature coefficient of the open circuit voltage of selected Galaxy* Lightweight product(refer to the corresponding Galaxy* Lightweight product parameter table).

If a reverse current exceeding the maximum fuse current of the Galaxy* Lightweight product may pass through the Galaxy* Lightweight product, an overcurrent protection device of the same size must be used to protect the product. If the number of parallel connections is more than or equal to 2 strings, there must be an overcurrent protection device on each string of the products, as shown in the figure 6-1.

6.2 Cable and Connecting Wires

Galaxy* Lightweight products shall be connected by using IP67 rated junction boxes, which shall provide safe protection for the conductors and their corresponding connections, and accessible protection for non-insulated live parts. The junction box consists of a connected cable and IP67 rated connectors to facilitate series connection between Galaxy* Lightweight products. A single product has two separate wires connected to two separate junction boxes, one positive and one negative. Two Galaxy* Lightweight products can be connected in series by inserting the positive connector into the socket of the negative connector of the adjacent product.

Use dedicated solar cables and appropriate connectors (wires should be encased in age-resistant conduit or, if exposed to air, should be age-resistant themselves) and ensure that the cables are electrically and mechanically sound, in accordance with local fire, building and electrical codes. Installers should only use single-core solar cables, 2.5-16mm2 (5-14 AWG), 90°C rated, with appropriate insulation to withstand the maximum possible system open circuit voltage (as approved by EN 50618). Appropriate wire sizes need to be selected to minimize voltage drop. All wiring and electrical

connections comply with the requirements of the appropriate National Electrical Code or standard.

Avoid mechanical damage to the cable or Galaxy* lightweight products when the cable is secured to the bracket. Do not press the cable with force. The cable shall be secured to the bracket by specially designed aging resistant cable ties and wire clips. Although the cable is resistant to aging and water, it should be protected from direct sunlight and rain. The minimum bending radius of the cable should be 43mm.

Figure 6-2 Minimum bending radius of the cable

6.3 Connector

Please keep the connector dry and clean, and make sure that the nut of the connector is tightened before connecting. Do not connect the connector when it is wet, dirty or in other unfavorable condition. If the connector is not connected properly to the other polarity, the connector is not waterproof. It is necessary to connect or take appropriate measures to avoid the infiltration of water vapor and dust as soon as possible after the module is mechanically installed to the roof. Avoid having connectors being exposed to direct sunlight and immersed in water. Avoid having connectors falling on the ground or on the roof. Incorrect connections may produce arcing and electric shock. Make sure all electrical connections are secure. Make sure that all connectors with locking are fully connected.

It is not recommended that connectors of different models be connected and used together.

6.4 Bypass Diode

The cell strings within a solar module are protected by bypass diodes in parallel and encapsulated in a junction box. When a hot spot phenomenon occurs locally in a module, the diode will activate so that string current no longer flows from the hot spot cells, thus limiting module heating and performance loss. Note that the bypass diode is not an overcurrent protection device. Contact the installer or system

maintainer when a diode failure is detected or suspected. Do not attempt to open the module's junction box by yourself.

6.5 Electrical requirements for the installation of Galaxy*lightweight products

1、Inspection before installation

①No visible defects.

②Models and specifications should meet the requirements of the design drawings.

③Accessories and spare parts are available;

④For electrical parameters, please refer to the appendix product specification.

2、Preparation of main tools

①Multimeter: For measuring the open-circuit voltage of Galaxy* lightweight products.

②Angle measuring instrument, level, etc.: measuring the installation angle of the Galaxy* lightweight product array.

③Installation tools and spare parts covered in Section 4.

6.6 Material Preparation

Please check whether the type and quantity of the arriving material is correct against the material list in configuration sheet.

1、Galaxy* Lightweight Products Electrical Wiring Requirements

①Wiring with clear, unambiguous and easily understood wire number identification.

②Jumper cable diameter must be exceed the original Galaxy* lightweight product cable diameter, and flame retardant and insulation performance should also be no less than that of Galaxy* lightweight product cable.

③Galaxy* lightweight products should be connected to each other in the shortest cable run possible. When Galaxy* lightweight products require long straddle connections, try to minimize the difference in the total length of each set of string-connected cables.

④The wiring terminals should be in good contact. When connecting each part of the Galaxy* lightweight product in series, it is best to test once each section is completed with a multimeter to string connectivity.

2、Electrical wiring method of Galaxy* lightweight products

① Wiring in accordance with the wiring in the electrical schematic.

② For products connected in series, the "+" pole of one product is connected to the "-" pole of another product. Extension cables are required if connection of products between different rows is needed. Please use entension cables that are for solar application specifically.

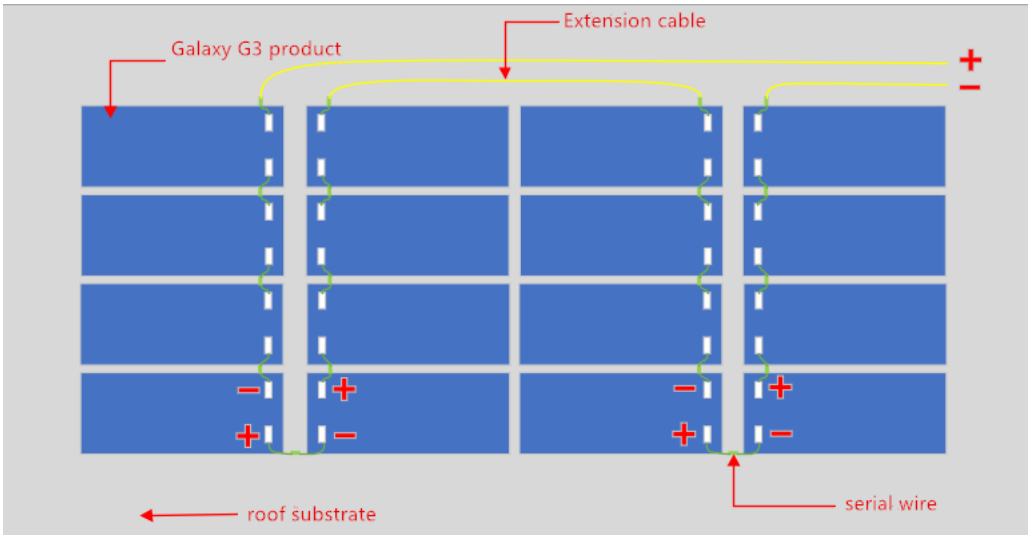


Figure 6-3 Product jumper connection operation instructions (front view)

③ When a group of series connections are connected as shown in the drawing, the remaining group of "+" and "-" pole terminals are connected to the combiner connector or combiner box.

④ Parallel connection of all accessory strings are done at the combiner connector or combiner box.

Note: This document only describes the wiring requirements and wiring principles. Since the roof of each site may not be the same, it is not possible to make uniform wiring process for each project here. Wiring can be done later in accordance with the product installation layout drawings in each project.

6.7 Combiner box installation requirements

① Connect the combiner kit to the product array according to the electrical schematic.

② Docking plugs to be plugged in place and firmly connected.

③ The combiner kit can be fixed on the bracket, the alignment is neat and easy to maintain.

④ The connection of the cable should avoid cable stress and friction due to wind-blown vibration and damage to the outer skin of the cable.

⑤ After the terminals of the combiner kit are connected, use the same cable clamps as the terminals of the product to clamp up the ends of the terminals.

7、Electrical construction process

In Australia, electrical installations should be installed in accordance to AS/NZS 3000 and AS/NZS 5033.

7.1 Construction Process

7.1.1 Operating conditions

① Assembly of product array is completed.

② Installation of inverter and distribution box is completed.

7.1.2 Preparation of main tools

① Impact drill: For drilling holes in the installation position of PVC and other line pipes and pipe cards.

②MC4 crimper: For on-site DC cable MC4 splice plug production.

③ Multimeter, megohmmeter: For cable conduction and insulation testing.

Wire stripping pliers: for cable stripping.

7.1.3 Main Materials

①DC cables for photovoltaics.

②AC cables.

③Cable DC connectors use the same type of MC4 as the product or a compatible one.

7.1.4 Installation Engineering Process

①Determine the cable run and AC/DC conduit requirement after on-site measurement.

② Conduit is required for cables between array and inverter. Conduit is required for cables between inverter and distribution box, distribution box and household electricity box.

7.1.5 Conduit laying requirements

① Follow local electrical standards and regulations when designing and laying the conduits, requirements of local standards and regulations prevails if contradictions is found.

When laying electrical conduits on the wall, they should be laid in the corners of the wall, in the same direction along rainfall pipes and air-conditioning pipes.

② It is advisable to avoid the crossover of AC and DC directions in the piping between equipment.

7.1.6 Cable laying

Requirements for cable laying:

① When wiring each system, the type of conductor, voltage level, etc. are inspected according to the provisions of the current national standards.

② Remove water and debris from the conduit or wire channel before threading.

③ When using the crimping method to connect the wire, the specifications of the terminal copper sleeve crimp should be consistent with the cross-section of the cable core.

④ AC and DC cables should be run in different conduits to ensure safety.

⑤ After the cable is installed, the joints should be glued and sealed to prevent water from seeping into the conduit. The opening of exposed conduits should be plugged with soft cloth to avoid the entry of foreign objects.

⑥ Cable bending radius ≥ 6D.

⑦ Wiring through conduits to avoid high temperature heat generating objects as much as possible.

⑧ Conduits need to be secured by conduit clips.

⑨ The AC and DC cables connected to the inverter and distribution box should to be marked with the cable number at both ends.

DC side MC4 cable connector installation.

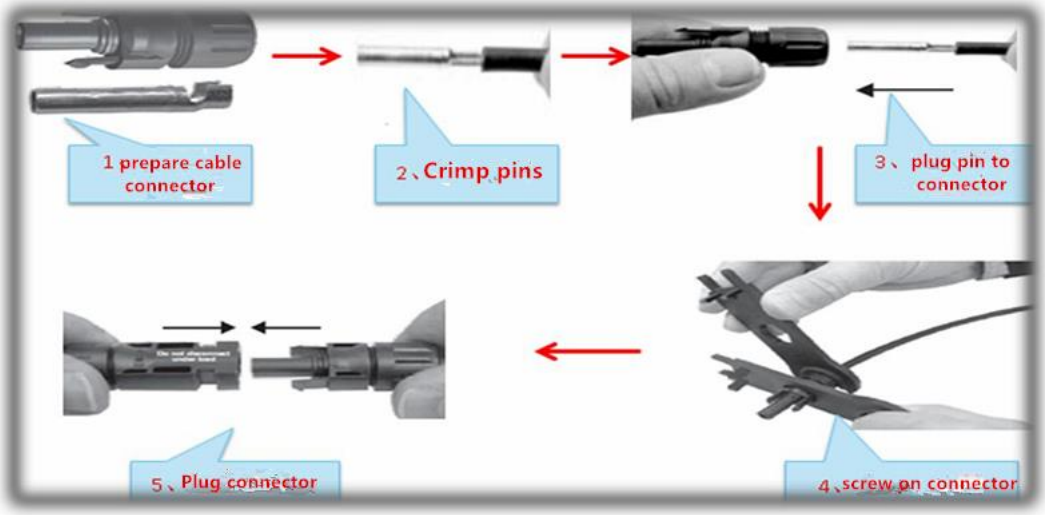
① Arrange MC4 cable connectors and pins according to their intended polarity.

② Strip the DC PV cable by using wire strippers according to the length of the copper core pins.

③ Insert the DC PV cable into the pins, and crimp the pins.

④ Insert the pins into the MC4 male and female connectors and fasten them with the MC4 special screwdriver.

⑤ Plugging in the male and female MC4 cable connectors and test the tightness of the connection.



MC4 cable connector production method

7.1.7 Sub-project requirements

① PVC flame-retardant rigid plastic pipe and its attached oxygen index should be 27% or more.

②Insulation of the cables should be tested before being threaded into conduits.

③ The minimum allowable bending radius of the cable laid through the pipe is six times of cable diameter.

④ The conduit clip spacing of exposed conduits should be:

a. Φ20 pipes are laid openly along the wall with a maximum distance of 1.5m between pipe clips;

b. Φ25 pipes are laid openly along the wall with a maximum distance of 2m between pipe clips.

c. Allowable value of deviation for the laying of open piping.

Straightness	<1.5mm/m
Verticality	<1.5mm/m

⑤ Cables from different circuits, different voltages or AC and DC cables, should not be worn in the same conduit.

⑥ There shall be no joints in the wires in the conduits.

⑦ Connect the MC4 plugs tightly.

8、Cautions

The following maintenance measures are recommended to ensure that the products achieve optimum performance and maximum system power generation.

1. Product appearance inspection, focuses on the following.

1.1 Whether the product is damaged or not.

1.2 Whether there are sharp objects touching the surface of the product.

1.3 Whether the product is shaded by obstacles and foreign objects, new grown trees, newly erected poles, etc..

1.4 Whether there is corrosion near the cell grid wire.

2. Product cleaning. The accumulation of dust or dirt on the surface of the product will reduce the power output. It should be cleaned regularly to keep the surface clean, generally should be cleaned at least once a month. Cleaning frequency should be adjusted depending on local environment. Please note the following when cleaning photovoltaic products:

2.1 Make sure the products and cables are not broken before cleaning the product.

2.2 First rinse the product with clean water, and then wipe the water stains dry with a soft cloth, it is strictly prohibited to use corrosive solvents to clean or wipe PV products with hard objects.

2.3 PV products should be cleaned at irradiance below 200W/m2, preferably when there is no sunlight or in the morning and evening.

2.4 It is strictly forbidden to wash PV products during strong wind (wind force greater than 4), heavy rain or heavy snow.

Attention: Do not walk, stand or sit on the product for product cleaning.

3 Product connector and cable inspection. It is recommended to inspect them every six months in a preventive manner.

3.1 Inspect PV products for signs of aging. This includes possible rodent damage, weather aging, and that all connectors are tightly connected and free of corrosion.

3.2 Do not disassemble then product by yourself if it is damaged, please inform the professional to handle it.

4. All electrical installations must comply with electrical installation standards and be completed by an electrical professional. Ensure that all input and output switches are off.

5. Do not connect the DC cable to the inverter AC output socket, and do not short-circuit or ground the output circuit.

6. The cable route between the DC input and the inverter should be as short as possible.

7. Different color cables should be selected to differentiate the connection process. The positive terminal is connected to the red cable and the negative terminal is connected to the blue cable.

8. To ensure balance between the product strings, the selected DC cables should have the same cross-sectional area.

9. Make sure to cover the product with an opaque material or disconnect the DC side circuit breaker before making electrical connections. The product array will generate dangerous voltages when exposed to sunlight.

9、Appendix

1. Product

组件类型 Module Type					
BMT-G2/096A(xxxW) (xxx=275-295, in steps of 5, 96 cells)					
电气性能 Electrical Properties					
测试条件 Testing Condition	1000W/m²,25℃,AM 1.5				
功率等级 Power	275W	280W	285W	290W	295W
每平米功率 Power/m²	152W/m²	155W/m²	158W/m²	161W/m²	163W/m²
开路电压 Voc	32.48V	32.72V	32.95V	33.15V	33.34V
短路电流 Isc	10.60A	10.70A	10.80A	10.91A	11.02A
最高功率点电流 Imp	10.08A	10.18A	10.28A	10.38A	10.48A
最高功率点电压 Vmp	27.29V	27.51V	27.75V	27.94V	28.15V
功率 & 开路电压&短路电流公差 Pmax & Voc & Isc tolerance	±3%	±3%	±3%	±3%	±3%
分档公差 Power Sorting tolerance	0/+5W	0/+5W	0/+5W	0/+5W	0/+5W
工作参数 Working parameters					
工作温度 Working temperature	-40℃~+85℃				
最大系统电压 Maximum System Voltage	1500V				
最大保险丝额定电流 Maximum Series Fuse Rating	20A				
标称工作温度 The rated operating temperature	45±2℃				
防火等级 Fire-resistant Class	C				
防护等级 Protection Class	II				

温度系数 Temperature Parameters	
Isc 温度系数 Isc TP	0.048%/℃
Voc 温度系数 Voc TP	-0.28%/℃
PMPP 温度系数 PMPP TP	-0.35%/℃
结构参数 Structure Parameters	
尺寸（mm） Dimension	2319±2（长）*777±1（宽）*4.0±1（高）
重量（KG） Weight	11±0.5Kg
电池 cell	Monocrystalline silicon solar cells（96pieces）
输出导线 Cable	4 mm²
接插头 Connector 1	Manufacturer：NINGBO GZX PV TECHNOLOGY CO.,LTD. Model：PV-GZX1500
适有坡度 Apply gradient	3°-45°
负载能力 Load Capacity	
正面最大静态载荷 Maximum static load on the front	5400Pa
背面最大静态载荷 Maximum static load on rear side	2400Pa
制造商信息 Manufacturer	
GOODWE (GUANGDE) POWER SUPPLY TECHNOLOGY CO., LTD. No.208, Tong Rui East Road, Guangde, Anhui, P.R. China Made in China.	

组件类型 Module Type				
BMT-G3/072A(xxxW) (xxx=250-265, in steps of 5, 72 cells)				
电气性能 Electrical Properties				
测试条件 Testing Condition	1000W/m²,25℃,AM 1.5			
功率等级 Power	250W	255W	260W	265W
每平米功率 Power/m²	165W/m²	168W/m²	172W/m²	175W/m²
开路电压 Voc	24.55V	24.80V	25.06V	25.32V
短路电流 Isc	12.74A	12.85A	12.96A	13.06A
最高功率点电流 Imp	12.13A	12.24A	12.35A	12.46A
最高功率点电压 Vmp	20.62V	20.84V	21.06V	21.27V
功率 & 开路电压&短路电流公差 Pmax & Voc & Isc tolerance	±3%	±3%	±3%	±3%
分档公差 Power Sorting tolerance	0/+5W	0/+5W	0/+5W	0/+5W
工作参数 Working parameters				
工作温度 Working temperature	-40℃~+85℃			
最大系统电压 Maximum System	1500V			

Voltage	
最大保险丝额定电流 Maximum Series Fuse Rating	25A
标称工作温度 The rated operating temperature	45±2℃
防火等级 Fire-resistant Class	C
防护等级 Protection Class	II
温度系数 Temperature Parameters	
Isc 温度系数 Isc TP	0.048%/℃
Voc 温度系数 Voc TP	-0.28%/℃
PMPP 温度系数 PMPP TP	-0.35%/℃
结构参数 Structure Parameters	
尺寸（mm） Dimension	1947±2（长）*777±1（宽）*4.0±1（高）
重量（KG） Weight	9±0.5Kg
电池 cell	Monocrystalline silicon solar cells（72pieces）
输出导线 Cable	4 mm²
接插头 Connector 1	Manufacturer：NINGBO GZX PV TECHNOLOGY CO.,LTD. Model：PV-GZX1500
适有坡度 Apply gradient	3°-45°
负载能力 Load Capacity	
正面最大静态载荷 Maximum static load on the front	5400Pa
背面最大静态载荷 Maximum static load on rear side	2400Pa
制造商信息 Manufacturer	
GOODWE (GUANGDE) POWER SUPPLY TECHNOLOGY CO., LTD. No.208, Tong Rui East Road, Guangde, Anhui, P.R. China Made in China.	

组件类型 Module Type					
BMT-G3/080A(xxxW) (xxx=275-295, in steps of 5, 80 cells)					
电气性能 Electrical Properties					
测试条件 Testing Condition	1000W/m²,25℃,AM 1.5				
功率等级 Power	275W	280W	285W	290W	295W
每平米功率 Power/m²	166W/m²	169W/m²	172W/m²	175W/m²	178W/m²
开路电压 Voc	27.14V	27.39V	27.65V	27.93V	28.19V
短路电流 Isc	12.68A	12.78A	12.88A	12.97A	13.06A
最高功率点电流 Imp	12.07A	12.17A	12.27A	12.36A	12.46A

最高功率点电压 Vmp	22.79V	23.01V	23.23V	23.47V	23.68V
功率 & 开路电压&短路电流公差 Pmax & Voc & Isc tolerance	±3%	±3%	±3%	±3%	±3%
分档公差 Power Sorting tolerance	0/+5W	0/+5W	0/+5W	0/+5W	0/+5W
工作参数 Working parameters					
工作温度 Working temperature	-40℃~+85℃				
最大系统电压 Maximum System Voltage	1500V				
最大保险丝额定电流 Maximum Series Fuse Rating	25A				
标称工作温度 The rated operating temperature	45±2℃				
防火等级 Fire-resistant Class	C				
防护等级 Protection Class	II				
温度系数 Temperature Parameters					
Isc 温度系数 Isc TP	0.048%/℃				
Voc 温度系数 Voc TP	-0.28%/℃				
PMPP 温度系数 PMPP TP	-0.35%/℃				
结构参数 Structure Parameters					
尺寸（mm） Dimension	2133±2（长）*777±1（宽）*4.0±1（高）				
重量（KG） Weight	10±0.5Kg				
电池 cell	Monocrystalline silicon solar cells（80pieces）				
输出导线 Cable	4 mm^2				
接插头 Connector 1	Manufacturer：NINGBO GZX PV TECHNOLOGY CO.,LTD. Model：PV-GZX1500				
适有坡度 Apply gradient	3°-45°				
负载能力 Load Capacity					
正面最大静态载荷 Maximum static load on the front	5400Pa				
背面最大静态载荷 Maximum static load on rear side	2400Pa				
制造商信息 Manufacturer					
GOODWE (GUANGDE) POWER SUPPLY TECHNOLOGY CO., LTD. No.208, Tong Rui East Road, Guangde, Anhui, P.R. China Made in China.					

组件类型 Module Type
BMT-G3/088A(xxxW) (xxx=300-325, in steps of 5, 88 cells)

电气性能 Electrical Properties						
测试条件 Testing Condition	1000W/m²,25℃,AM 1.5					
功率等级 Power	300W	305W	310W	315W	320W	325W
每平米功率 Power/m²	166W/m²	169W/m²	172W/m²	174W/m²	177W/m²	180W/m²
开路电压 Voc	29.72V	30.01V	30.27V	30.53V	30.78V	31.02V
短路电流 Isc	12.64A	12.73A	12.82A	12.90A	12.98A	13.07A
最高功率点电流 Imp	12.03A	12.12A	12.21A	12.30A	12.38A	12.47A
最高功率点电压 Vmp	24.98V	25.21V	25.44V	25.65V	25.86V	26.07V
功率 & 开路电压&短路电流公差 Pmax & Voc & Isc tolerance	±3%	±3%	±3%	±3%	±3%	±3%
分档公差 Power Sorting tolerance	0/+5W	0/+5W	0/+5W	0/+5W	0/+5W	0/+5W
工作参数 Working parameters						
工作温度 Working temperature	-40℃~+85℃					
最大系统电压 Maximum System Voltage	1500V					
最大保险丝额定电流 Maximum Series Fuse Rating	25A					
标称工作温度 The rated operating temperature	45±2℃					
防火等级 Fire-resistant Class	C					
防护等级 Protection Class	II					
温度系数 Temperature Parameters						
Isc 温度系数 Isc TP	0.048%/℃					
Voc 温度系数 Voc TP	-0.28%/℃					
PMPP 温度系数 PMPP TP	-0.35%/℃					
结构参数 Structure Parameters						
尺寸（mm） Dimension	2319±2（长）*777±1（宽）*4.0±1（高）					
重量（KG） Weight	11±0.5Kg					
电池 cell	Monocrystalline silicon solar cells（88pieces）					
输出导线 Cable	4 mm²					
接插头 Connector 1	Manufacturer：NINGBO GZX PV TECHNOLOGY CO.,LTD. Model：PV-GZX1500					
适有坡度 Apply gradient	3°-45°					
负载能力 Load Capacity						
正面最大静态载荷 Maximum static load on the front	5400Pa					
背面最大静态载荷 Maximum static load on rear side	2400Pa					
制造商信息 Manufacturer						

GOODWE (GUANGDE) POWER SUPPLY TECHNOLOGY CO., LTD.
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