



 <b>苏州腾晖光伏技术有限公司</b> Suzhou Talesun Solar Technologies Co., Ltd.	<b>TECHINICAL SPECIFICATION</b>	
<b>TITLE: LIMITED WARRANTY CERTIFICATE FOR TALESUN BRAND CRYSTALLINE SOLAR PHOTOVOLTAIC MODULE</b>	<b>SPEC. NO.:</b>	TS-ET-058
	<b>REVISION:</b>	A1
	<b>EFFECTIVE DATE:</b>	07-2019
		Page <b>1</b> of <b>7</b>

SuZhou Talesun Solar Technologies Co., Ltd. (“TALESUN”) provide the limited warranty as below (“Limited Warranty”) described below to the initial end user (the “Buyer”) for its “TALESUN” brand crystalline SPV MODULES of the following types:

1. TUV : TP572M-XXX (XXX=170, 175, 180, 185, 190, 195, 200, 205);
2. TUV : TP596M-XXX (XXX=230, 235, 240, 245, 250, 255, 260, 265, 270, 275);
3. TUV : TP648M-XXX (XXX=185, 190, 195, 200, 205, 210, 215, 220, 225, 230, 235, 240, 245, 250);
4. TUV : TP648P-XXX (XXX=175, 180, 185, 190, 195, 200, 205, 210, 215, 220, 225, 230);
5. TUV : TP660M-XXX/ TP660M (H) -XXX (XXX=220, 225, 230, 235, 240, 245, 250, 255, 260, 265, 270, 275, 280, 285, 290, 295, 300, 305, 310, 315) ;  
UL: TP660M-XXX / TP660M(H)-XXX (XXX=250, 255, 260, 265, 270, 275, 280, 285, 290, 295, 300, 305, 310, 315, 320, 325,330,335);
6. TUV : TP660P-XXX/ TP660P (H) -XXX (XXX=215, 220, 225, 230, 235, 240, 245, 250, 255, 260, 265, 270, 275, 280, 285, 290, 295,300);  
UL : TP660P-XXX/ TP660P(H)-XXX (XXX=240, 245, 250, 255, 260, 265, 270, 275, 280, 285) ;
7. TUV: TP672M-XXX/ TP672M (H) -XXX (XXX=265, 270, 275, 280, 285, 290, 295, 300, 305, 310, 315, 320, 325, 330, 335, 340, 345, 350, 355, 360, 365, 370, 375, 380,385,390,395,400);  
UL: TP672M-XXX / TP672M(H)-XXX (XXX=,300, 305,310,315,320, 325,330,335, 340, 345, 350, 355, 360, 365, 370, 375, 380, 385, 390, 395);
8. TUV : TP672P-XXX/ TP672P (H) -XXX (XXX=260,265,270, 275, 280, 285,290, 295, 300, 305, 310, 315, 320, 325, 330, 335, 340, 345, 350, 355,360);  
UL : TP672P-XXX/ TP672P(H)-XXX (XXX=285,290,295,300,305,310,315,320, 325,330, 335,340,345);
9. TUV : TP6H60M-XXX/TP6H60M (H) -XXX (XXX=305, 310, 315, 320, 325, 330, 335, 340, 345);
10. TUV: TP6H60P-XXX/ TP6H60P (H) -XXX ( XXX=270, 275, 280, 285,290,295,300,305);
11. TUV: TP6H72M-XXX/ TP6H72M (H) -XXX (XXX=365, 370, 375, 380, 385, 390, 395, 400, 405, 410);
12. TUV: TP6H72P-XXX/ TP6H72P (H) -XXX (XXX=325, 330, 335, 340, 345, 350, 355, 360, 365);

Note:

**M** -Mono Module,

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		Page 2 of 7

- P** -Poly Module,
- H**- stand for half cutting module
- (H)**- stand for 1500V system voltage,

The product model includes but is not limited to the above model and shall be subject to the specific model purchased by the customer.

Talesun Solar warrants its Modules types listed in the MODULES type table, will perform fully compliant to the materials and technical specifications under normal application, installation, utilization and service conditions. Talesun will promise, in the following the prescribed period of time, Repair products or components that in line with the appearance of serious appearance defects and power definition abnormal defect of IEC61215, IEC61730, UL1703 standard, or replace or power compensation with new or remanufactured equivalent products or components, or Talesun will provide economic compensation according to the current price of the relevant components, Talesun Solar to decide. but the attenuated power during the period used will be deducted, the labor and material costs generated in the process does not need to assume, specific details are as follows:

This warranty does not apply to the damage caused by non Talesun fault damage, including but not limited to appearance of damaged or defiled, caused due to the use of any abuse or unreasonable or non standard maintenance structure caused by unauthorized design.

In order to enforce the rights under this limited warranty, the Buyer should follow the steps set forth below and provide proof of purchase to TALESUN.

The limited warranty described herein is in addition to whatever implied warranties may be granted to the Buyer by law. All implied warranties including the warranties of merchantability and fitness for use are limited to the period(s) from the Warranty Effective Date set forth below. Neither the sales personnel of TALESUN nor any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time period described below on behalf of TALESUN.

The warranties described herein shall be sole and exclusive warranties granted by TALESUN and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of TALESUN to the Buyer with respect to the Products and shall constitute full satisfaction of all claims, whether based on contract, negligence, and strict liability otherwise. In no event shall TALESUN be liable, or in any way responsible, for any damages or defects in the Products which were caused by repairs or attempted repairs performed by anyone other than

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		Page <b>3</b> of <b>7</b>

TALESUN or authorized service providers. Nor shall TALESUN be liable or in any way responsible for any incidental or consequential economic or property damage. TALESUN's aggregate liability, if any, in damages or otherwise, shall not exceed the invoice value as paid by the Buyer, for the Product(s) with problem.

### **12 Year Limited Product Warranty**

Except for the following topics included, Talesun to initial buyers ensure its production of photovoltaic modules, in normal use, installation and maintenance of the case, not as a result of materials and production processes do not meet the serious appearance defined IEC61215 and IEC61730, UL1703 standard defect and abnormal appearance or caused by power generation. Defect.

TALESUN guarantees that the Product(s) will maintain the mechanical integrity and stability in accordance with approved operation methods described in its installation instructions; the glass of a module will maintain its integrity provided there are no indications of localized impacts or external forces; and that the cable and connector plug of a module will remain safe and operational provided modules are professionally installed. Any damages caused by abrasion, improper installation or animals are exempt from this warranty.

Claims under the warranty can only be accepted if the Buyer can provide proof that the malfunctioning or non-conformity of the Product(s) results exclusively from defects in materials and/or workmanship under normal application, installation, use and service conditions specified in TALESUN's standard product specification. Any color change on module or any other changes on module appearance do not represent defects, insofar as the change in appearance does not stem from defects in material and/or workmanship, and does not cause degradation of functionality of the module.

If the module occurs during the warranty period of the material or production process in accordance with the appearance of serious appearance defects and power definition of abnormal IEC61215, IEC61730, UL1703 standard or defects caused by power effect, Talesun will repair, replace, compensation power or refund the customer in accordance with the current price of the relevant components, the specific way is decided by Talesun. but the attenuated power during the period used will be deducted.

### **25 Year Limited Performance Warranty**

Talesun for modules 25 years power output limited warranty as follows:

Monocrystalline Solar Cell Modules:

- a) From the first year of sale, the actual output power of the module is not less than 97% of the product of the maximum output power of the module and the minimum value of the module tolerance .
- b) From year 2 to year 24, the nominal power decline will be no more than 0.7% in each

 <b>苏州腾晖光伏技术有限公司</b> Suzhou Talesun Solar Technologies Co., Ltd.	<b>TECHNICAL SPECIFICATION</b>	
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	<b>REVISION:</b>	A1
	<b>EFFECTIVE DATE:</b>	07-2019
		Page 4 of 7

year; by the end of year 25, the actual output power of the module is not less than 80% of the maximum output power of the module's maximum peak output and the minimum of the module tolerance .

Polycrystalline Solar Cell Modules:

- a) From the first year of sale, the actual output power of the module is not less than 97.5% of the product of the maximum output power of the module and the minimum value of the module tolerance.
- b) From year 2 to year 24, the nominal power decline will be no more than 0.7% in each year; by the end of year 25, the actual output power of the module is not less than 80.7% of the maximum output power of the module's maximum peak output and the minimum of the module tolerance .

Description: the output power is the power of the PV module under standard test conditions (STC). The standard test conditions (STC) are as follows: (a) spectral AM1.5, (b) light intensity 1000W/m<sup>2</sup>, (c) temperature 25 + 2 DEG C. The test is based on the IEC61215 and IEC61836 components, the actual output power measurement is in the factory or by Talesun approved third party inspection agency, the test uncertainty of 2 sigma (Pmpp) less than 2.5% which should be added to the actual power test calculation to eliminate the test error between different measuring devices.

If during the warranty period, the power output is lower than the actual module commitment power, by Talesun confirmed, Talesun will provide additional modules to customers in order to compensate for the loss of power, or maintenance and replacement of faulty components to eliminate power loss, or loss of power to customers of the corresponding economic compensation, the specific way by Talesun to decide. but the attenuated power during the period used will be deducted

Compensation for insufficient component power (see below):

Type 1: Pnc - compensation for insufficient module power in N;

Pnt - module theoretic minimum output power of N;

Pna - actual output power of modules for year N;

Δt - absolute value of minimum tolerance of nameplate;

(a) for polycrystalline components, the Pnt uses the following formula

$$Pnt = [97.5\% - 0.7\% * (N-1)] * Pm * (1 - \Delta t)$$

(b) for Monocrystalline modules, the Pnt uses the following formula

$$Pnt = [97\% - 0.7\% * (N-1)] * Pm * (1 - \Delta t)$$

Note: Pm is the nominal output power of the product in the Talesun product data sheet,

(c) Pna is tested under standard test conditions (STC), tested at the Talesun plant or Talesun's third party testing organization, to test the actual output power of modules for the years N.

### Warranty Effective Date

The warranty effective date shall be defined as the date of sale with the certifiable invoice

 <b>苏州腾晖光伏技术有限公司</b> Suzhou Talesun Solar Technologies Co., Ltd.	<b>TECHNICAL SPECIFICATION</b>	
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	<b>REVISION:</b>	A1
	<b>EFFECTIVE DATE:</b>	07-2019
		Page 5 of 7

(SALES DATE) to the Buyer or 90 (ninety) days after the delivery by TALESUN, whichever date is earlier.

**Additional Item(s) Excluded from Warranty Coverage:**

Warranty coverage does not apply when:

- a) The Product is improperly installed or abused or misused;
- b) The Product is installed in a mobile or marine environment, subjected to improper voltage or power surges or abnormal environmental conditions (such as acid rain or other pollution);
- c) the assembly, base, structural component, or installation method of the component is defective
- d) External corrosion, mold discoloration or the like occurs;
- e) Defects caused by the Product being subjected to any of the following: extreme thermal or environmental conditions or rapid changes in such conditions, corrosion, oxidation, unauthorized modifications or connections, unauthorized opening or repair, repair by use of unauthorized spare parts, accident, force of nature (such as lightning strike), influence from chemical product or other acts beyond TALESUN reasonable control (including but not limited to damage by fire, flood, etc.);
- f) Death or injury to persons resulting from any cause other than negligence of TALESUN, its employees or representatives;
- g) Incidental, consequential or special damages such as loss of use, loss of profits, revenues, business, goodwill, damage to reputation or expensed payable to a third party.
- h) Module failed, such as pid (potential induced degradation) which worse system design, worse installation and worse system components mismatch induced.

**Other**

The repair or replacement of the Products or the supply of additional Products does not cause the beginning of new warranty terms, nor shall the original terms of this “Limited Warranty for SPV Module” be extended. Any replaced Products shall become the property of TALESUN made for their disposal. TALESUN has the right to deliver another type (different in size, color, shape and/or power) in case TALESUN discontinue producing the replaced Products at the time of the claim.

**Force Majeure**

TALESUN shall not be responsible or liable in any way to the purchaser or any third-party arising from any non-performance or delay in performance of any terms and conditions of sale, including this “Limited Warranty for SPV Module” , due to acts God, war, riots, strikes, unavailability of suitable and sufficient labor, material, or capacity or technical or yield

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	<b>REVISION:</b>	A1
	<b>EFFECTIVE DATE:</b>	07-2019
		Page 6 of 7

failures and any unforeseen event beyond its control, including, without limitations, any technological or physical event or condition which is not reasonably known or understood at the time of the sale of the Products or the claim.

### How to obtain warranty

If the customer according to "standard PV products limited warranty" can make legitimate claims, complaints and belong to completely reasonable warranty scope, should be immediately in written notice of the complaint to the following address, Talesun, electronic mail or email to the following. The customer shall enclose the warranty certificate along with the corresponding components, serial number and purchase date. At the same time, invoices should be provided which clearly display the purchase date, purchase price, component type, seal or signature of Talesun or its distributor as evidence. Any return of the PV module will not be accepted if Talesun fails to issue written authorization and confirmation in advance.

The limited warranty does not cover the appropriate return modules and the heavy transport costs due to repair or replacement of modules, and does not include the installation, disassembly or re installation costs of these modules.

In case of any discrepancy in a warranty-claim, a first-class international test-institute such as TUV SUD China, VDE product testing technology (Shanghai) co., LTD , TUV Rheinland in Cologne, Germany or Arizona State University, USA shall be involved to judge the claim finally. The final explanation right shall be borne by TALESUN. Warranty claims will not be honored if the type or serial number of the Products have been altered, removed or made illegible.

### Severability

If a part, provision or clause of this "Limited Warranty for SPV Module", or the application thereof to any person or circumstance, is held invalid, void or unenforceable, such holding shall not affect and shall leave all other parts, provisions, clauses or applications of this "Limited Warranty for SPV Module", and to this end such other parts, provisions, clauses or applications of this "Limited Warranty for SPV Module" shall be treated as severable.

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	<b>REVISION:</b>	A1
	<b>EFFECTIVE DATE:</b>	07-2019
		Page <b>7</b> of <b>7</b>

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 <b>苏州腾晖光伏技术有限公司</b> Suzhou Talesun Solar Technologies Co., Ltd.	<b>TECHINICAL SPECIFICATION</b>	
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	<b>REVISION:</b>	A1
	<b>EFFECTIVE DATE:</b>	07-2019
		Page <b>8</b> of <b>7</b>

**SWITZERLAND**

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