

Limited Warranty for Standard Perovskite Photovoltaic Modules

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Limited Warranty for Standard Perovskite Photovoltaic Modules

Photon Crystal Energy Technology Ltd. (hereinafter referred to as "Photon Crystal Energy") provides the customers who install Photon Crystal Energy's standard perovskite photovoltaic modules (hereinafter referred to as the "Modules") with the Limited warranty Against Material and Workmanship Defects and the Limited Power Output Warranty (collectively referred to as the "Limited Warranty") as set forth herein.

For the purpose of this Limited Warranty, "Customer" means the purchaser who has purchased the Modules directly from Photon Crystal Energy, and any successor or assignee of such purchaser approved in writing by Photon Crystal Energy.

1. Warranty Commencement Date

The Warranty Period shall commence on the date of product shipment and shall be deemed effective within 0–30 days after shipment, based on the customer's confirmed date of receipt, provided that such commencement shall in no event be later than thirty (30) days after the shipment date.

2. Limited Product Workmanship and Materials Warranty

Photon Crystal Energy warrants that the Products shall be free from defects in materials and workmanship for a period of ten (10) years from the Warranty Commencement Date. If a Product fails to conform to this Limited Warranty during the above warranty period, Photon Crystal Energy shall, at its sole discretion, repair the defective Product or replace it with a new Product.

After delivery of the Product to the customer, any changes in the Product's appearance that are not caused by inherent material defects, including but not limited to scratches, stains, mechanical wear, or breakage resulting from causes not attributable to Photon Crystal Energy, shall not be covered under this Limited Warranty.

3. Limited Power Warranty

3.1 Warranty for Maximum Power Output under Standard Test Conditions (STC)

Photon Crystal Energy warrants that the Standard Perovskite PV Modules will maintain the following warranted power output under Standard Test Conditions (STC) for a period of twenty-five (25) years from the Warranty Commencement Date:

During the first twelve (12) months, the actual maximum power output shall not be less than 96.0% of the Rated Maximum Power at shipment. By the end of the twenty-fifth (25th) year, the actual maximum power output shall not be less than 80.0% of the Rated Maximum Power at shipment.

3.2 Calculation of the Power Retention Rate

Rated Maximum Power at Shipment (P_0) means the maximum power at the maximum power point, expressed in watts (W), as specified on the original Product Nameplate and measured under Standard Test Conditions (STC) at the time of shipment. The Rated Maximum Power does not include any manufacturing power tolerance.

Rated Maximum Power at Shipment (P_0) = P_{max} or P_{mpp} indicated on the Product Nameplate.

Actual Maximum Power During the Warranty Period (P_t) means the maximum power at the maximum power point measured under Standard Test Conditions (STC), after eliminating measurement uncertainty, at any time t after the Warranty Commencement Date during the Warranty Period, based on testing conducted under warranty conditions.

Standard Test Conditions (STC) mean:

- (a) Air Mass (AM) 1.5 spectral distribution;
 - (b) Irradiance of 1000 W/m²;
 - (c) Cell temperature of 25°C, with light incident perpendicular to the module surface;
- and testing shall be performed in accordance with the applicable requirements of IEC 61215.

According to the above definitions, the Power Retention Rate (PRR) during the Product service life shall be calculated as follows:

$$\text{PRR (Power Retention Rate)} = P_t / P_0 \times 100\%$$

3.3 Limited Remedies

If, during the applicable Warranty Period, the Product is tested by a testing laboratory designated or approved by Photon Crystal Energy and the measured maximum power output is found to be below the warranted value specified above, and such power loss is demonstrated to be solely attributable to Photon Crystal Energy, Photon Crystal Energy shall, upon receipt of the customer's written claim and supporting evidence, at its sole discretion:

Repair the defective Product or replace it with a new Product at no charge; and bear the reasonable transportation costs associated with such repair or replacement.

The remedies provided under this Section constitute the sole and exclusive remedies available under this Limited Power Warranty. Any defects in materials or workmanship arising during the Warranty Period shall be resolved exclusively under the Limited Product Workmanship and Materials Warranty. Any power loss resulting from defects in materials or workmanship shall not be compensated separately under this Limited Power Warranty.

4. Non-Cumulative Warranty Coverage

The Customer may make a warranty claim under any applicable provision of this Limited Warranty. If a single warranty event qualifies for coverage under more than one warranty provision, any remedy provided by Photon Crystal Energy with respect to such event shall be deemed to satisfy all obligations under the applicable warranty provisions arising from the same event.

5. Exclusions and Limitations of Liability

5.1 Under no circumstances shall any warranty claim be valid unless the customer submits a written claim to Photon Crystal Energy or its authorized distributor within the applicable warranty period, together with relevant written supporting documentation. In the event of a complaint submitted by an end customer, if, after verification by Photon Crystal Energy's after-sales service department, it is confirmed that the distributor who purchased the relevant batch of products has any outstanding payment obligations under its contract with Photon Crystal Energy, Photon Crystal Energy shall have the right to reject and refuse to process such complaint.

5.2 The Limited Warranty Against Material and Workmanship Defects and the Limited Power Output

Warranty shall not apply to products that have been subject to any of the following conditions:

- (1) Improper installation, operation, maintenance, repair, or modification that does not comply with Photon Crystal Energy's installation manual or technical instructions;
- (2) Damage or failure caused by any of the following circumstances, including but not limited to: extreme environmental conditions or rapid changes thereof, corrosion, oxidation, unauthorized modification or connection, unauthorized opening of the product, repairs performed using unauthorized spare parts, accidents, acts of nature (including but not limited to lightning strikes, earthquakes, etc.), chemical exposure, or any other events beyond Photon Crystal Energy's reasonable control, including but not limited to fire, flood, snowstorm, typhoon, lightning, natural disasters, changes in national policies, terrorist acts, war, riots, strikes, or the unavailability of adequate and qualified labor or raw materials;
- (3) Any service, repair, or maintenance performed by personnel who are deemed unqualified under the applicable laws and regulations of the installation location;
- (4) Any alteration or removal of the product model number or serial number, or any act that renders the model number or serial number illegible or difficult to identify, without the prior written authorization of Photon Crystal Energy;
- (5) Misuse, abuse, negligence, or accidents occurring during transportation, storage, installation, operation, or servicing;
- (6) Damage caused by external mounting structures, supporting systems, or defects in the buildings or structures where the products are installed;
- (7) Operation beyond the maximum system voltage rating or exposure to electrical surges;
- (8) Any other circumstances beyond Photon Crystal Energy's reasonable control.

5.3 This Limited Warranty only covers the transportation costs associated with shipment of repaired or replacement products provided by Photon Crystal Energy. Any costs incurred for returning products to Photon Crystal Energy, its authorized agents, or authorized distributors without prior written approval from Photon Crystal Energy, including but not limited to freight charges, customs clearance fees, installation costs, removal costs, and re-installation costs, shall be borne solely by the end customer. Photon Crystal Energy shall not be liable for any costs, expenses, liabilities, or obligations incurred independently by the customer without prior written authorization from Photon Crystal Energy.

6. Scope of Limited Warranty

6.1 This Limited Warranty supersedes and excludes all other warranties, whether express or implied, including, without limitation, any implied warranties of merchantability, fitness for a particular purpose or application, non-infringement of third-party rights (including intellectual property rights), and all other obligations or liabilities of Photon Crystal Energy, unless expressly authorized in writing and signed by the Chief Executive Officer of Photon Crystal Energy.

6.2 Unless otherwise prohibited by applicable laws or regulations, Photon Crystal Energy shall not be liable for any injury to any person, damage to tangible property, or any other loss arising from causes other than the product itself, including, without limitation, losses arising during the installation, operation, or use of the product.

6.3 Photon Crystal Energy shall not be liable under this Limited Warranty for any special, indirect, incidental, or consequential damages, including, without limitation, loss of profits, business interruption, loss of power generation, loss of reputation, or delay-related losses, whether such claims are based on contract, warranty, negligence, tort, or strict liability.

6.4 If Photon Crystal Energy is liable to compensate the Customer, Photon Crystal Energy's aggregate liability shall not exceed the total purchase price paid by the Customer for the Products.

7. Warranty Claim Procedure

7.1 If the customer discovers any any defect covered by this Limited Warranty, the customer shall first notify the direct seller from whom the products were purchased. Only if the direct seller cannot be contacted may the customer contact Photon Crystal Energy directly to obtain warranty services provided under this Limited Warranty.

7.2 The customer's notification shall include, but not be limited to: a detailed description of the defect;
complete serial numbers of the affected products; photographs showing the defective areas; relevant inspection or testing data; a copy of the commercial invoice; and the purchase date.

7.3 If the products need to be returned for inspection, repair, or replacement, Photon Crystal Energy shall issue a Return Material Authorization (RMA). Photon Crystal Energy shall not accept any returned products without a valid Return Material Authorization (RMA). If, after inspection by Photon Crystal Energy, the returned products are determined not to have a defect covered under this Limited Warranty, Photon Crystal Energy shall have no obligation to repair, replace, or otherwise compensate for such products, and all related transportation costs shall be borne by the customer. Furthermore, ownership of any replacement products provided to the customer in advance shall remain with Photon Crystal Energy. The Customer shall either return such replacement products to Photon Crystal Energy or reimburse Photon Crystal Energy for their value.

8. Dispute Resolution

8.1 Any dispute arising during the performance of warranty obligations shall be subject to final quality determination by a third-party testing institution designated by Photon Crystal Energy. If the third-party testing institution determines that the products have a quality defect covered under this Limited Warranty, the relevant testing costs shall be borne by Photon Crystal Energy. If the third-party testing institution determines that the products do not have any quality defect covered under this Limited Warranty, the relevant testing costs shall be borne by the customer.

8.2 Any dispute arising out of or relating to this Limited Warranty, including but not limited to disputes regarding its existence, validity, breach, or termination, shall be submitted to the competent People's Court located at the place where Photon Crystal Energy is domiciled. If a customer requests Photon Crystal Energy to perform its obligations under this Limited Warranty, Photon Crystal Energy may require such customer to execute a supplemental agreement making this dispute resolution provision binding upon such customer as a prerequisite to Photon Crystal Energy's performance of its obligations under this Limited Warranty.

9. Miscellaneous

9.1 Repair or replacement of defective products by Photon Crystal Energy shall not extend or renew the original warranty period. The warranty period for repaired or replaced

products shall be limited to the remaining warranty period of the original product. Any products replaced under this Limited Warranty shall become the property of Photon Crystal Energy. If Photon Crystal Energy discontinues production of the relevant product model during the warranty period, Photon Crystal Energy reserves the right to provide an alternative product model of the original brand or a new brand which may differ in size, color, shape, or rated power.

9.2 This Limited Warranty is issued based upon and subject to the sales contract entered into between Photon Crystal Energy and the Customer and the customer and shall be incorporated into and governed by the terms and conditions of the relevant sales agreement. The parties may amend the terms of this Limited Warranty through their contractual agreement. Photon Crystal Energy reserves the right to amend or update this Limited Warranty at any time without prior notice.

9.3 This Limited Warranty is valid only if the customer transports, stores, installs, and maintains the PV Modules in accordance with Photon Crystal Energy's requirements. Failure to comply with these requirements shall void the warranty. **Particular attention shall be paid to the following:**

(1) The PV Modules shall be stored in a dark, light-shielded condition from shipment until unpacking for installation. The storage period under such conditions shall not exceed sixty (60) days. After unpacking and installation on the PV mounting structure, the Modules shall be connected to a photovoltaic power system, inverter system, grid-connected system, or energy storage system within seven (7) days, so that the Modules are not left individually or collectively in a short-circuit, open-circuit, or zero-power-consumption condition. If the customer or the installation contractor is unable to comply with the above requirements, a written agreement shall be reached with Photon Crystal Energy in advance to specify appropriate mitigation measures and any corresponding warranty conditions.

(2) Following installation and commissioning of the PV Modules, if maintenance or inspection requires the system to be disconnected, the Modules shall not remain in an open-circuit condition for more than two (2) consecutive hours.

(3) The edges and corners of the Modules shall be protected from impact during handling and installation.

(4) Striking, scratching, or abrading the Module surface with sharp or hard objects is

strictly prohibited.

(5) After removal from the packaging, the Modules shall not be placed or stacked without adequate protection or spacing.

(6) Standing directly on the Module surface during installation or maintenance is strictly prohibited. It is recommended to use lifting equipment or other suitable auxiliary tools for installation, removal, maintenance, and inspection. Alternatively, the Modules should be installed, removed, maintained, or inspected sequentially by row or column. Where personnel access is necessary, load-distribution boards or other auxiliary devices providing adequate structural support should be used, with support points positioned over the mounting rails or clamp centers to prevent localized compression or foot loading on the Modules. The specific protective measures shall be determined according to the installation design and the actual site conditions.