



Guarantee terms for photovoltaic modules

Beneficiary: End customer

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GUARANTEE TERMS PHOTOVOLTAIC MODULES

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SHARP Electronics GmbH, Nagelsweg 33-35, 20097 Hamburg, Germany (hereinafter referred to as “SHARP”) is committed to the highest quality of the product. The SHARP photovoltaic modules listed in Table 1, hereinafter referred to as “module(s)”, have been produced with care and subjected to a final inspection. Because of this, SHARP grants a **Product Guarantee (Section A)** and a **Power Output Guarantee (Section B)** for the modules. The product guarantee applies only to the material and processing of the modules, while losses in power output of the modules are subject to the power output guarantee due to the ageing process of the solar cells (so-called degradation). **Section C: Guarantee terms** shows what is subject to the terms and conditions applicable to both guarantees.

The following table provides an overview of the time scope of the product and service guarantees. Sections A, B and C regulate the content and scope of the product and power output guarantees in detail.

SHARP Module type	Technology	Country group	Type of installation	Product guarantee A			Power Output guarantee B		
				25 years	15 years	12 years	B1 30 years	B2 30 years	B3 25 years
NUJC410B	PERC	EU+		x					x
		Global				x			x
NUJC415B	PERC	EU+		x					x
		Global				x			x
NUJC415	PERC	EU+	On roof	x					x
		Global	Not on roof		x				x
NUJC420B	TOPCon	EU+		x			x		
		Global				x	x		
NUJC425B	TOPCon	EU+		x			x		
		Global				x	x		
NUJC430	TOPCon	EU+		x			x		
		Global				x	x		
NUJC435	TOPCon	EU+		x			x		
		Global				x	x		
NUJD540	PERC	EU+	On roof	x					x
		Global	Not on roof		x				x
NUJD550	PERC	EU+	On roof	x					x
		Global	Not on roof		x				x
NBJD540	PERC	EU+	On roof	x				x	
		Global	Not on roof		x			x	
NBJD545	PERC	EU+	On roof	x				x	
		Global	Not on roof		x			x	
NBJD550	PERC	EU+	On roof	x				x	
		Global	Not on roof		x			x	
NBJD570	TOPCon	EU+	On roof	x			x		
		Global	Not on roof		x			x	
NBJD575	TOPCon	EU+	On roof	x			x		
		Global	Not on roof		x			x	
NBJD580	TOPCon	EU+	On roof	x			x		
		Global	Not on roof		x			x	

Table 1: Overview of applicable guarantees

Legend: Definition “On roof” and “not on roof”: Section C No. 1.4, “EU+”: Section C No. 1.2

Section A: Product guarantee

SHARP guarantees the beneficiary (hereinafter also referred to as the “Guarantee holder”) in accordance with the guarantee conditions in Section C that the modules delivered to him within the guarantee period do not have any material or workmanship defects that significantly impair their function (hereinafter “Defect”).

The guarantee period is:

- 25 years if, in EU+ countries, the modules with the ending “B” in the type designation (for example NU-JC410B) are affected or other modules are installed on a roof.
- 15 years if other modules are not installed on a roof in the EU+ countries.
- 12 years, in Global countries, regardless of the module and type of installation.

The calculation of the pre-mentioned guarantee period is measured according to the regulation in section C, No. 1.5.

No defect within the meaning of this product guarantee shall be deemed to be normal wear and tear of the module as well as colour changes or other changes in the module's appearance (e.g. stains, abrasion, scratches, corrosion, mould, etc.), as long as the module can be operated safely and the warranty values specified within the scope of the performance guarantee (Section B) are not undercut.

If the guarantee values specified in Section B are not met, a guarantee is based on the regulations on the performance guarantee in Sections B1 to B3.

The product guarantee covers all components (glass, cells, foils, frames, electrical components, junction boxes, connectors and cables) belonging to the module and supplied with it at the time of delivery.

Section B: Power output guarantee

Under the conditions of Section C, SHARP also provides the guarantee holder with an independent, voluntary guarantee for the power output of the solar cells installed in the modules. SHARP guarantees for the respective guarantee period, calculated from the date of delivery (guarantee period), that as a result of the ageing process of the solar cells (degradation) the respective listed percentages of the stated minimum output power of the module will not be undercut. The guarantee period and the guaranteed percentages can be found in the relevant section B1, B2 or B3 for the module.

Determination of the minimum output power and the guaranteed percentage:

100% of the minimum output power is calculated from the maximum power (P_{max}) indicated on the name plate minus the tolerance also specified there.

The actual module performance is determined and verified under standard test conditions as follows:

Cell temperature 25 degrees Celsius; radiated power 1,000 W/m² with AM-1.5 spectrum, on a system calibrated by SHARP (according to DIN EN IEC 60904).

Limitations of the power output guarantee:

The power output guarantee only covers reductions in power output that occur due to wear and tear or ageing of the solar cells themselves. Performance reductions resulting from defects or ageing processes of other components of the delivered modules are excluded from the performance guarantee, as are reductions in power output due to external influences such as soiling and yellowing of the glass surfaces, shading effects, plant growth, natural or artificial coatings.

Section B1: 30 year power output guarantee TOPCon modules

SHARP guarantees the power output of a TOPCon module within a period of 30 years. (see Table 2).

The calculation of the pre-mentioned guarantee period is measured according to the regulation in section C, No. 1.5.

In the first year of the guarantee, 99% of the minimum output power of the module is guaranteed. From the second year of guarantee, and for every other year, the guaranteed power output is reduced by 0.4% of the initial minimum output. In the 30th year, 87.5% of the initial minimum output is still guaranteed. This guarantee will terminate automatically with the expiration of the 30th year of the guarantee period.

A detailed list of annual guarantee values is shown in the following table 2:

Year	Guaranteed percentage of minimum output power	Year	Guaranteed percentage of minimum output power
1	99.00%	16	93.00%
2	98.60%	17	92.60%
3	98.20%	18	92.20%
4	97.80%	19	91.80%
5	97.40%	20	91.40%
6	97.00%	21	91.00%
7	96.60%	22	90.60%
8	96.20%	23	90.20%
9	95.80%	24	89.80%
10	95.40%	25	89.40%
11	95.00%	26	89.00%
12	94.60%	27	88.60%
13	94.20%	28	88.20%
14	93.80%	29	87.80%
15	93.40%	30	87.50%

Table 2: TOPCon power output guarantee

Section B2: 30-year power output guarantee PERC modules

SHARP guarantees the power output of a PERC module of the NB-series for 30 years. (see Table 3).

The calculation of the pre-mentioned guarantee period is measured according to the regulation in section C, No. 1.5. In the first year of the guarantee, 98% of the minimum output power of the module is guaranteed. From the second year of guarantee, and for every other year, the guaranteed power output is reduced by 0.45% of the initial minimum output. In the 30th year, 85% of the initial minimum output is still guaranteed. This guarantee will terminate automatically with the expiration of the 30th year of the guarantee period.

A detailed list of annual guarantee values is shown in the following table 3:

Year	Guaranteed percentage of minimum output power	Year	Guaranteed percentage of minimum output power
1	98.00%	16	91.25%
2	97.55%	17	90.80%
3	97.10%	18	90.35%
4	96.65%	19	89.90%
5	96.20%	20	89.45%
6	95.75%	21	89.00%
7	95.30%	22	88.55%
8	94.85%	23	88.10%
9	94.40%	24	87.65%
10	93.95%	25	87.20%
11	93.50%	26	86.75%
12	93.05%	27	86.30%
13	92.60%	28	85.85%
14	92.15%	29	85.40%
15	91.70%	30	85.00%

Table 3: Power output guarantee PERC

Section B3: 25-year power output guarantee PERC modules

SHARP guarantees the power output of a PERC module of the NUJC and NUJD-series for a period of 25 years. (see Table 4). The calculation of the pre-mentioned guarantee period shall be governed by Section C No. 1.5.

In the first year of the guarantee, 98% of the minimum output power of the module is guaranteed. From the second year of guarantee, and for every other year, the guaranteed power output is reduced by 0.54% of the initial minimum output. In the 25th year, 85% of the initial minimum output is still guaranteed. This guarantee will terminate automatically with the expiration of the 25th year of the guarantee period.

A detailed list of annual guaranteed values is shown in the following table 4:

Year	Guaranteed percentage of minimum output power	Year	Guaranteed percentage of minimum output power
1	98.00%	14	90.98%
2	97.46%	15	90.44%
3	96.92%	16	89.90%
4	96.38%	17	89.36%
5	95.84%	18	88.82%
6	95.30%	19	88.28%
7	94.76%	20	87.74%
8	94.22%	21	87.20%
9	93.68%	22	86.66%
10	93.14%	23	86.12%
11	92.60%	24	85.58%
12	92.06%	25	85.04%
13	91.52%		

Table 4: Performance guarantee PERC

Determination of the minimum output power and the guaranteed percentage:

100% of the minimum output power is calculated from the maximum power (Pmax) indicated on the name plate minus the tolerance also specified there.

The actual module performance is determined and verified under standard test conditions as follows:

Cell temperature 25 degrees Celsius; radiated power 1,000 W/m² with AM-1.5 spectrum, on a system calibrated by SHARP (according to DIN EN IEC 60904).

Limitation of the power output guarantee:

The power output guarantee only covers reductions in power output that occur due to wear and tear or ageing of the solar cells themselves. Power output reductions resulting from defects or ageing processes of other components of the delivered modules are excluded from the power output guarantee, as are power output reductions due to external influences such as soiling and yellowing of the glass surfaces, shading effects, plant growth, natural or artificial coatings.

Section C: Guarantee conditions

1. General prerequisites

1.1 Beneficiary (Guarantee holder):

The guarantees (Product and power output guarantees) are declared solely to the end customer. The guarantee declarations do not apply to intermediaries or installation companies or secondary purchasers of the modules. End customers are all those purchasers of modules who have bought themselves for their own use (and not for the purpose of resale), or who have purchased a plot of land on which the modules were first installed. The module must be part of the photovoltaic system in which it was operated for the first time.

1.2 Territorial scope

The guarantee conditions apply worldwide. For modules which were first placed on the market in the EU+ area and which were installed in this area for the first time, these guarantee conditions contain partially deviating regulations. According to these guarantee conditions, the EU+ area includes the European Union and the countries of Albania, Bosnia and Herzegovina, Iceland, Israel, Liechtenstein, North Macedonia, Montenegro, Norway, Serbia, Switzerland, Turkey, Ukraine and the United Kingdom.

1.3 Type of installation

Modules are only considered “mounted on the roof” if they are fully attached to a roof surface that is suitable for draining rain and is non-combustible. Other types of mounting are considered “not mounted on a roof”.

1.4 Relationship to statutory guarantee claims:

The guarantees exist independently of statutory guarantee or warranty rights that the entitled party has against the seller, as well as independent of non-contractual claims. They represent an independent, voluntary and free service from SHARP to the beneficiary, which has no influence on the quality agreements between seller and buyer.

1.5 Calculation of the guarantee period:

Warranty claims can only be asserted within the respective applicable guarantee period in accordance with sections A and B, which begins with delivery to the beneficiary. An extension of the guarantee period, regardless of the legal reason, is excluded.

2. Guarantee exclusions

2.1 The guarantees apply to normal and proper application, installation, use and only under normal operating conditions. In particular, the guarantees do not cover any impairments or loss of power output of the modules that arise as a result of the modules

- not being installed professionally in accordance with the applicable assembly instructions,
- not having been transported, assembled or operated without observing the recognised rules of technology,
- not having been stored properly before or during assembly,
- not having sufficient ventilation or the maximum permissible temperatures, according to the operating instructions, having been exceeded,
- being used contrary to their intended purpose, e.g. on mobile units such as vehicles and ships,
- having been modified or modified without the express consent of SHARP (e.g. by applying additional stickers or inscriptions, drilling holes),
- having been connected to non-identical solar modules from other manufacturers or components other than the associated ones having been used,
- being exposed to unusual environmental influences (salty air, salt water, sandstorms, over-voltage, magnetic fields or similar),
- not having been cleaned professionally in accordance with the instructions described in the applicable assembly instructions,
- being exposed to force majeure (e.g. lightning strikes, power surges, hailstorms, fire, vandalism as well as damage caused by snow, frost and ice, natural disasters, falling rocks).

On the other hand, a professional replacement of the connectors does not lead to an exclusion of the guarantee. In this case, the guarantees continue for all parts of the module – with the exception of the replaced connectors.

2.2 SHARP will not accept claims if serial numbers or name plates are missing or have been tampered with, or if the modules are otherwise not clearly identifiable.

2.3 Guarantee claims cannot be transferred to any third party.

3. Guarantee services

3.1 In the event of a guarantee claim within the meaning of Section A or B, SHARP shall, at its sole discretion, remedy the beneficiary's complaint at its own expense either by repairing the affected module or by supplying a functioning new module of the same type. In case of a serial defect or in case the originally delivered module type is no longer produced at the time of the guarantee claim, SHARP reserves the right to deliver another module type (with possibly deviating characteristics) with which the power output still guaranteed at the time of the claim. The delivery of a new module shall only be made concurrently with the return of the claimed module at the place where it was originally delivered to the guarantee holder. The returned module shall become the property of SHARP.

3.2 If a guarantee holder complains about the power output provided by the module by invoking the power output guarantee granted by SHARP in Section B, he shall have the right, after consultation with SHARP, to commission a test laboratory accredited in accordance with DIN EN ISO/IEC 17025 to conduct a power output measurement under standard test conditions. Power measurements must be carried out in accordance with the currently valid DIN EN IEC 60904 standards. The measurement tolerance must be recorded.

If the power output measurement results in a value below the power output guaranteed by SHARP under Section B and the accredited test laboratory further confirms that the reduction in power output is due to ageing of the cell itself and not to other circumstances leading to exclusion from the guarantee, and if SHARP thereupon acknowledges the guarantee claim, or if such claim is finally determined by a court of law, SHARP shall bear the reasonable costs of the power output measurement for the module concerned as previously agreed between the guarantee holder and SHARP. If, on the other hand, the complaint is not justified, all costs incurred, including the costs for power output measurement, shall be borne by the customer.

3.3 There are no further claims arising from these guarantees.

3.4 Only the remaining time of the original guarantee period applies to the newly delivered or repaired modules.

4. Assertion of the guarantee claims

4.1 Guarantee claims must be made in writing by the beneficiary to SHARP Electronics GmbH, Nagelsweg 33-35, 20097 Hamburg, Germany, or by e-mail to solarservice@sharp.eu, at the latest within three months after discovery of the defect or loss of power output and within the respective guarantee period. Late complaints will not be considered. The timely receipt of the notification is decisive for compliance with the respective deadline.

4.2 A prerequisite for asserting the guarantees is that the beneficiary presents the original invoice and delivery note. Upon SHARP's request, the beneficiary shall also provide further documents or information necessary to be able to reconstruct a warranty claim (for example, the installation date, place and address of the installation, exact description of the observed fault and, if applicable, further information that can contribute to the analysis of the fault, photos of the damaged modules, the circuit diagram of the installation, data acquisition records, etc.).

4.3 In the event of a claim under the power output guarantee, the guarantee holder shall also be obliged to provide evidence of the loss of power below the minimum power output guaranteed by SHARP. The module power is measured under standard test conditions (25° C cell temperature, irradiation 1,000 W/m² and spectrum AM 1.5 on a system calibrated by SHARP [according to DIN EN IEC 60904]). The power is measured at the pre-mounted connectors of the module. The guarantee holder must obtain these standard test conditions for the proof of falling below the minimum power.

4.4 The guarantee holder is only entitled to return modules with the prior written consent of SHARP.

5. Choice of law, place of jurisdiction, languages, entry into force and duration of the guarantee conditions

5.1 The laws of the Federal Republic of Germany shall apply with regard to the guarantees and to legal disputes concerning these guarantees, excluding the UN Convention on Contracts for the International Sale of Goods (CISG) and the conflict of laws.

5.2 If the guarantee holder is a merchant, a legal entity under public law or a special fund under public law, the exclusive – including international – place of jurisdiction for all legal disputes relating to the guarantees shall be SHARP's registered office in Hamburg, Germany.

5.3 SHARP makes these guarantee conditions available to customers in multiple languages. In the event of deviations, the German version shall be considered legally binding.

5.4 These guarantee conditions come into force on November, 1st, 2023. They apply to modules purchased by the beneficiary between that date and the date on which new guarantee conditions come into force. The date of purchase of the modules is decisive.



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