

## NOAH 2000 Warranty Terms and Conditions

Apply to the following models:

Balcony Solar Storage needs to be used with a micro-inverter, which can be compatible with third-party micro-inverters.

Growatt New Energy Technology Co., Ltd provides a non-transferable warranty for a period of **10** years for the integrated lithium-ion phosphate batteries (the battery). This standard warranty validates from the date of customer purchase, and no more than **10** years and 6 months from the date of delivery from Growatt.

These warranty terms and conditions only apply for devices originally purchased from Growatt for selling and installation in the defined destination set forth in the purchase orders in the overseas market (out of China), unless there are specially stipulated.

Warranty Period subjects to the Warranty terms and conditions, as well as the exclusions described below. This warranty does not include any accessories and tool kit items provided with the product.

### **Warranty of the Battery Performance**

Growatt warrants that the warranted battery retains at least **50%** of Nominal Operation Energy (The Nominal Operation Energy is **2.048 kWh** for each battery, hereinafter refers to as Nominal Operation Energy) for the 10 years warranted period under proper conditions of the use during the period of battery performance warranty (or **4000** full charge cycles, whichever comes first).

The term “Nominal Operation Energy” herein means the initially rated operation capacity of the battery, stated on the battery specification or battery User Manual.

The precondition of the valid performance warranty shall be as follows:

- (1) The ambient temperature during the operation of the warranted battery must not fall below -20 °C or exceed 45 °C at all times; when storing the ambient temperature must not fall below 0°C or exceed 40°C; and
- (2) The warranted battery should not be exposed to a temperature exceeding 45 °C at any time; and
- (3) The prerequisite for warranty of performance mentioned below must be met.

The prerequisites are as follows:

The product has a standard warranty of 300 annual cycles. Exceeding this limit will result in a reduced warranty percentage.

The following calculations and all data sources are from Growatt.

The rate of time attenuation is 1.5% per year, and the rate per cycle is 0.011667%.

**Time attenuation** = 1.5% × number of years

**Cyclic attenuation** = 0.011667% × number of cycles

**So Cumulative attenuation** = **Time attenuation + Cyclic attenuation**

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**Reduced warranty rate due to excessive cycles** = (number of cycles/number of years - 300) / 300

**Reduced warranty ratio:** If the **Reduced warranty rate due to excessive cycles** is <0, then the **Reduced warranty ratio** = 0,

Otherwise, the **Reduced warranty ratio** = **Reduced warranty rate due to excessive cycles**

**Warranty energy** = (2.048×95%)×(1-Cumulative attenuation)×(1-Reduced warranty ratio)

**Warranty energy ratio** = **Warranty energy** / (2.048×95%)

The following is an example of the warranty status of different years and different cycle times.

Number of years	1	2	3	4	5	6	7	8	9	10
Number of years(Example)	250	780	920	1400	1480	1850	2100	1600	3100	2700
Time attenuation	1.5%	3.0%	4.5%	6.0%	7.5%	9.0%	10.5%	12.0%	13.5%	15.0%
Cyclic attenuation	2.92%	9.10%	10.73%	16.33%	17.27%	21.58%	24.50%	18.67%	36.17%	31.50%
<b>Cumulative attenuation</b>	<b>4.4%</b>	<b>12.1%</b>	<b>15.2%</b>	<b>22.3%</b>	<b>24.8%</b>	<b>30.6%</b>	<b>35.0%</b>	<b>30.7%</b>	<b>49.7%</b>	<b>46.5%</b>
<b>Reduced warranty ratio</b>	<b>0%</b>	<b>30%</b>	<b>2%</b>	<b>17%</b>	<b>0%</b>	<b>3%</b>	<b>0%</b>	<b>0%</b>	<b>15%</b>	<b>0%</b>
<b>Warranty energy(kWh)</b>	<b>1.86</b>	<b>1.20</b>	<b>1.61</b>	<b>1.26</b>	<b>1.46</b>	<b>1.31</b>	<b>1.26</b>	<b>1.35</b>	<b>0.83</b>	<b>1.04</b>
Warranty energy ratio	95.6%	61.5%	82.9%	64.7%	75.2%	67.5%	65.0%	69.3%	42.9%	53.5%

If the **Warranty energy ratio** is higher than 50%, warranty replacement service will not be provided.

For claiming Warranty of Performance, proof of accumulated date shall be submitted. Proof of accumulated date can be represented as : Growatt device monitoring date, pictures of GROWATT STORAGE DEVICES LCD showing the total discharge energy. In addition, in the event that no proof of battery accumulated data can be provided, the Warranty of Battery performance is NOT valid or covered.

In addition, after the battery warranty has expired, the customer (installer or end user) is required to remove the battery from the storage system, contact the supplier and replace it with a new or proper one under warranty. Growatt is not responsible for unexpected hurt, damage or sequence (electric shock, fire, etc.) for warranty expired or void batteries.

### Exclusion of Warranty

This warranty includes defects of design, components and manufacturing, but excludes the following damage due to:

- Breaking the product seal (opening the casing);
- Transport damage, or other kinds of physical damage, for example, damage from falls;
- Outdoor installation or outdoor usage without proper shelter;
- Failure to observe the user manual, the installation guide, and the maintenance regulations;
- Unauthorized Modifications, changes, or attempted repairs;
- Incorrect use or inappropriate operation; Connect or mix with different types of battery modules;
- Insufficient ventilation of the device; Installation under the direct sun light; Installation adjacent to thermal source;

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- Fail to meet the storage temperature requirement: 0°C to +40°C;
- Fail to meet the operating environmental requirement: charging temperature 0 °C to +45 °C , discharging temperature -20°C to 45°C; Humidity ranges 30% to 95% no condensation, installation altitude should be less than 2000 meters;
- Failure to observe the applicable safety regulations;
- Defects or non-conformities which are caused by normal wear and tear;
- The serial number on the Product can no longer be identified or has been modified;
- Force majeure and any other such defects caused by external influences including unusual physical or electrical stress (power failure surges, lightning, flood, fire, storm, accidental breakage);

For outdoor installation or use, in order to avoid direct sunlight and excessive temperature, the inverter needs to be placed in a cool and ventilated place, and the temperature must be within the above standard range, it is necessary to give reasonable, appropriate and effective shielding (enough to cover the size range of the inverter and effectively reduce the temperature).

**The warranty does not apply if the obligations and exclusions described above are not complied or not observed.**

### **Warranty condition**

It required that the battery system (charge and discharge device and battery itself) must be monitored on the Growatt's monitoring platform. The battery warranty would be reduced to **3** years without monitoring.

Growatt's monitoring platform continuously monitors battery performance and reports when a battery fails. The monitoring allows us to diagnose and fix the problem remotely. Each time a warranty claim is made for a battery that without monitoring, then the installer or the end user is obliged to organize qualified personnel to conduct an onsite inspection and data collection under the instruction of Growatt.

A warranty case occurs when the battery shows a malfunction which no longer enables the intended use. Please report defective devices with a detailed error description and the error code displayed on GROWATT STORAGE DEVICES LCD screen.

If a device becomes defective during the agreed Growatt factory warranty period and provided that it will not be impossible or unreasonable, the device will be, as selected at the discretion of Growatt:

- Repaired by Growatt, or
- Repaired on-site, or
- Exchange for a replacement device of equivalent value according to the model and age.

In the latter case, the remainder of the warranty entitlement will be transferred to the replacement device. In this case, you do not receive a new warranty card or certificate since your entitlement is documented at Growatt.

In any event, a replacement or repair shall not justify the renewal or new beginning of the warranty period. In the event that the warranted battery model is not available in the market anymore, then Growatt, it's eligible to at its own discretion, replace it with a different kind of product with equivalent functions and performances

In any event, the installation of the battery for customer shall be completed within 6 (SIX) months from the date of delivery from Growatt.

Excessiveness in the meaning above exists in particular if the cost of the measures for Growatt would be unreasonable

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- In view of the value that the device would have without the defect,
  - Taking into account the significance of the defect, and
  - After consideration of alternative workaround possibilities that Growatt customers could revert to without significant inconvenience.

In the event that the reported defect or malfunction is caused by installation errors or incorrect connection of the equipment, the customer will be required to pay the costs related to the unduly performed assistance activity.

This warranty does not cover superficial or cosmetic defects, dents, marks or scratches, which do not affect the proper function of the battery, especially for warranty replacement devices.

Due to the technological progress, the replacement part or replacement device provided may not be compatible with the system monitoring or monitoring device, or other components installed on-site. Costs incurred as a result are not part of this warranty service and will not be covered by Growatt.

Except as herein expressly stated, there are no warranties or conditions, express or implied, by operation of law or otherwise, for any Growatt warranted battery thereof furnished hereunder. The parties agree that the implied warranties of merchantability and fitness for a particular purpose and all other warranties and/or guarantees, express or implied, are excluded from this transaction and shall not apply for the warranty of battery.

All other claims are excluded. in no event shall Growatt be liable for any special, incidental or consequential damages of any nature whatsoever for any reason (including, without limitation, lost profits, loss of use, loss of equipment or loss of revenues) , regardless of the legal theory on which any such claim may be made, even if advised of the possibility of such damages. Claims that go beyond to get a warranty replacement, in particular claims for compensation for direct or indirect losses including (by not limited to) labor cost and other kinds of expenditures for carrying out the battery warranty, logistics fees, loss of electricity profits, etc., are also not covered by this warranty; unless Growatt is subject to statutory liability. In such cases, please contact the company that sold you the device. Possible claims in accordance with the product liability law remain unaffected.

This warranty does not restrict the warranty claims of the purchaser arising from the purchasing contract entered into with the seller of the batteries.

#### **Warranty Claim documents**

Please report the defective device to your supplier with this warranty card completed, in no later than 14 days after signs arise of a problem that might lead to a claim.

Supplier or end user is required to send the warranty claim form to Growatt or the Authorized service partner with all the necessary information.

The warranty shall be performed if all of the following conditions are met:

This warranty card is present in its original form.

The original purchase and installation invoice of the battery, indicating the date of purchase or installation. And, a commissioning report signed by the end user and the installer, for the product installing and commissioning.

Please follow the Growatt user manual provided with the battery.

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The battery has consistently been used as intended at all times.

The capacity of the battery is under 50% of the Nominal Operation Energy within 10 years from the date of the warranted period. Customer cooperates in determining whether or not the Nominal Operation Energy has been achieved by providing Growatt evidence via the monitoring system or GROWATT STORAGE DEVICES or it can be measured and calculated using the following testing method and values:

①Ambient temperature:  $25\pm2^{\circ}\text{C}$

②Initial temperature detected by BMS:  $25\pm2^{\circ}\text{C}$

③Charge and discharge test method:

Testing method: Test environment:  $25\pm2^{\circ}\text{C}$

1) Discharge at a constant current of 0.2C (8A) until the lowest cell voltage is less than or equal to 2.5V or discharge according to the discharge mechanism recommended by Growatt to the discharge cut-off condition specified by Growatt;

2) Let stand for 30min or according to the shelf time specified by Growatt (stand still until the battery cell temperature reaches  $25\pm2^{\circ}\text{C}$ );

3) Charge with a constant current of 0.2C (8A) to a total voltage of 56V, and charge with a constant voltage until the current is less than 0.02C (1A) or the highest cell voltage up to 3.58V. Or according to the charging mechanism recommended by Growatt to charge until reaches to cut-off condition specified by the manufacturer;

4) Let stand for 30min or according to the shelf time specified by Growatt (stand still until the battery cell temperature reaches  $25\pm2^{\circ}\text{C}$ );

5) Discharge at a constant current of 0.2C (8A) to the lowest cell voltage  $\leq 2.5\text{V}$ , or discharge according to the discharge mechanism recommended by Growatt to the discharge cut-off condition specified by Growatt; Record the total discharge amount during the discharge process (Q01 is calculated in Ah);

6) Let stand for 30min or according to the shelf time specified by Growatt (stand still until the battery cell temperature reaches  $25\pm2^{\circ}\text{C}$ );

7) Repeat steps 2-6, the discharge capacity is Q02, and Q03 respectively, then the arithmetic average of the three discharges capacity is Q0. If the deviations of the test results Q01, Q02, Q03 and Q0 are all less than 1%, then Q0 is the available capacity of the battery system. If the deviation of the test results Q01, Q02, Q03 and Q0 is not less than 1%, it is necessary to repeat the available capacity test process until the discharge capacity for three consecutive times meets the conditions for the available capacity confirmation.

And the warranty condition is not affected by the Exclusion of Warranty stated above.

To make a warranty claim under this warranty, the installer or the end user must contact us, and submit a Warranty Claim Form on the website [warranty.growatt.com](http://warranty.growatt.com), or via Growatt's local service agent publicly known, or email address [service@ginverter.com](mailto:service@ginverter.com).

In any event, submit the warranty claim form to Growatt within **1 (ONE)** month of battery failure.

Growatt will examine the submitted documentary evidence and then decide whether to collect the battery and conduct a further inspection to verify the remaining capacity of the battery. In the case of the inspection of the

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remaining capacity indicating that the guaranteed capacity has not fallen short of, the costs and expenses associated with such inspection shall be reimbursed by the Customer.

Growatt may contact customer for further details, in regards to the defective battery, requiring to complete root cause analysis testing of the product or providing further evidence that can support the warranty claim.

Please store this warranty certificate in a safe place together with the original purchasing and installation invoice, and other related materials for the warranted battery. To determine the warranty entitlement, please submit copies of the warranty claim documents listed above. Otherwise, Growatt is entitled to refuse warranty services.

#### Applicable Law

All claims arising from or in connection with this warranty are subject to the laws of People's Republic of China. Shenzhen, China is the exclusive place of jurisdiction for all disputes arising from or in connection with this warranty.

**Please note Growatt reserve the ultimate explanation right on this battery warranty card.**

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