

WARRANTY TERMS & CONDITIONS

5.12 kWh – 51.2 V / 100 Ah LFP ESS BATTERY

Product: Lithium Iron Phosphate (LFP) Energy Storage Battery

Nominal Voltage: 51.2 V

Rated Capacity: 100 Ah

Nominal Energy: 5.12 kWh

Warranty Period: 10 Years / 4,000 Equivalent Full Cycles, whichever occurs first

1. WARRANTY COVERAGE

The manufacturer warrants that the 51.2 V / 100 Ah LFP ESS Battery shall be free from defects in materials and workmanship under normal use and operation, subject to the terms and conditions specified in this document.

This warranty applies only when the battery is installed, operated, stored, and maintained in accordance with the manufacturer's specified requirements.

The warranty covers manufacturing-related defects and qualifying performance failures occurring during the applicable warranty period.

2. WARRANTY PERIOD

The warranty period shall be:

10 years from the date of invoice, or

4,000 equivalent full charge/discharge cycles,

Whichever occurs first

The warranty shall not be considered extended merely because the battery has undergone repair or replacement during the warranty period, unless otherwise agreed in writing by the manufacturer.

3. PERFORMANCE / CAPACITY WARRANTY

The battery has a nominal rated capacity of 100 Ah / 5.12 kWh at a nominal voltage of 51.2 V.

The battery shall retain a minimum of 70% of its original rated capacity at the end of the applicable warranty period, subject to the specified operating conditions and test methodology.

Capacity degradation resulting from normal electrochemical aging shall be considered normal battery behavior and shall not constitute a manufacturing defect when the battery remains within the applicable warranted capacity limit.

The manufacturer's test results shall be used to determine whether the battery meets the applicable warranty capacity requirement.

4. CYCLE WARRANTY

The battery is warranted for up to 4,000 equivalent full cycles, subject to all other conditions of this warranty.

The actual service life of the battery may vary depending on operating temperature, charge/discharge current, DoD, SOC, installation conditions, and other operating factors.

5. BATTERY SPECIFICATIONS

Parameter	Specification
Battery Chemistry	Lithium Iron Phosphate (LFP)
Nominal Voltage	51.2 V
Rated Capacity	100 Ah
Nominal Energy	5.12 kWh
Maximum Continuous Charge Current	105 A
Maximum Continuous Discharge Current	105 A
Recommended Charge Current	50 A
Maximum Recommended DoD	80%
Charging Temperature	0°C to 55°C
Discharging Temperature	-20°C to 55°C
Recommended Storage SOC	30%–50%
Maximum Recommended Storage Period	3 Months
Enclosure Protection	IP20
Communication Interface	CAN / RS485

6. OPERATING CONDITIONS

The battery shall be operated within the specified electrical and environmental limits.

Charging

Maximum continuous charge current: 105 A

Recommended charge current: 50 A

Charging temperature: 0°C to 55°C

Discharging

Maximum continuous discharge current: 105 A

Maximum recommended DoD: 80%

Discharging temperature: -20°C to 55°C

Operation outside these specified limits may result in accelerated degradation, reduced battery life, or damage.

Failure caused by operation outside the specified limits may not be covered under warranty.

7. INSTALLATION REQUIREMENTS

The battery shall be installed by a suitably qualified person and in accordance with the manufacturer's installation instructions.

The installation location shall provide adequate protection and ventilation appropriate for the product and Battery should **install in indoor** since battery has **IP20 protection**.

The battery shall be protected from:

- Flooding
- Condensation
- Excessive humidity
- Excessive heat
- Fire or other hazardous conditions
- Conductive dust or contamination
- Mechanical impact or vibration beyond the specified limits
- Reaching of child's.

The battery shall be securely installed and all electrical connections shall be properly terminated.

8. INVERTER COMPATIBILITY

The battery is designed for use with compatible ESS inverter systems that support the required battery voltage, current limits, communication protocol, and battery configuration.

The approved inverter brands include:

- Growatt
- SOFAR
- Voltronic Power
- GoodWe
- SRNE
- MUST
- Victron Energy
- SMA
- Deye
- AISWEI
- Sacolar
- Sol-Ark
- XMT
- Solis
- LuxPowerTek
- Studer
- Sorotek

Pylon compatibility, where applicable, shall refer to the relevant supported battery communication protocol/configuration and shall not be interpreted as an inverter manufacturer.

Compatibility may depend on the specific inverter model, firmware version, communication protocol, cable configuration, and system settings.

The manufacturer recommends confirming compatibility with the specific inverter model before installation.

9. COMMUNICATION

The battery supports:

CAN
RS485



Where communication between the battery BMS and inverter is required, the correct communication protocol, communication cable, pin configuration, inverter settings, and battery parameters must be used.

Incorrect communication wiring, incorrect protocol selection, incompatible firmware, or incorrect inverter configuration may cause improper battery operation.

Failures directly resulting from incorrect communication configuration may not be covered under warranty.

10. PARALLEL BATTERY OPERATION

Multiple batteries may only be connected in parallel where such operation is supported by the applicable product documentation and system configuration.

For approved parallel installations:

Batteries shall be installed in accordance with the manufacturer's specified parallel connection requirements.

Only batteries of the same approved model and specification shall be connected in parallel. This battery shall not be connected in parallel with any other battery model, battery chemistry, voltage, capacity, or specification.

Where two or more batteries are connected in parallel and the total continuous system current exceeds 125 A, an appropriately rated external positive and negative DC busbar shall be used for the main power connections.

Each battery shall be connected to the common external busbars using appropriately sized cables suitable for the maximum expected current.

Appropriate protection devices shall be provided for the parallel battery system and individual battery connections where required.

Communication wiring between the batteries and inverter/BMS shall be correctly configured using the specified CAN/RS485 communication arrangement, where applicable.

Batteries connected in parallel shall have compatible SOC and voltage before connection.

Proper cable sizing, cable routing, connection arrangement, and current sharing shall be maintained.

The external busbar, cables, terminals, and protection devices shall be suitably rated for the maximum continuous and peak current of the system.

The battery shall not be connected in parallel with batteries of any other model, chemistry, voltage, capacity, or specification. Any damage or failure resulting from connecting this battery with an incompatible or different battery model may not be covered under warranty.

11. BATTERY EARTHING / GROUNDING REQUIREMENT

The battery shall be provided with a proper protective earthing (grounding) connection as part of the ESS installation.

The battery enclosure/chassis shall be connected to the site's protective earth (PE) using a suitable earthing conductor.

The earthing conductor shall be appropriately sized and securely terminated in accordance with applicable electrical installation standards and the manufacturer's installation requirements.

The battery earthing connection shall have a reliable, low-resistance connection and shall be properly tightened and protected against loosening or corrosion.

The battery protective earth connection shall be connected to the same common protective earthing system used for the inverter and other relevant ESS equipment.

The battery DC positive or negative terminal shall not be connected to earth unless specifically required by the battery/inverter system design or manufacturer instructions.

Earthing shall not be substituted with a neutral connection or any other conductor.

The installer shall verify the continuity and integrity of the protective earthing connection before commissioning the battery.

Failure to provide proper protective earthing, or operation of the battery without the required earthing connection, may create a safety hazard and may result in damage for which warranty coverage may not apply.

12. STORAGE REQUIREMENTS

The battery may be stored for up to 3 months provided the recommended storage conditions are maintained.

Recommended Storage Conditions

Storage SOC: 30%–50%

Dry and clean storage environment

Protection from water and condensation

Protection from direct sunlight

Protection from excessive heat

Battery shall not be stored under conditions outside the manufacturer's specified limits

For storage periods exceeding 3 months, the manufacturer shall be consulted regarding the required recharge and maintenance procedure.

Storage for longer than 3 months without following the applicable maintenance/recharging procedure may result in battery degradation and may affect warranty coverage where such degradation is attributable to improper storage.

13. WARRANTY COVERAGE

Subject to the terms of this warranty, the manufacturer may cover failures attributable to:

- Manufacturing defects
- Defective materials
- Defective workmanship
- Internal BMS defects attributable to manufacturing
- Internal battery component defects
- Qualifying battery performance failures

The manufacturer reserves the right to inspect and test the battery before approving a warranty claim.

14. WARRANTY EXCLUSIONS

The warranty shall not cover failures, damage, or degradation resulting from:

- Incorrect installation or commissioning.
- Operation outside the specified voltage, current, temperature, or DoD limits.
- Physical damage, impact, crushing, puncturing, or severe mechanical damage.
- Water ingress, flooding, excessive moisture, or corrosion.
- Fire, lightning, surge, external short circuit, or other external electrical events.
- Incorrect polarity or reverse connection.
- Incorrect electrical wiring.
- Incorrect CAN or RS485 communication wiring.
- Use with an incompatible inverter or system.
- Incorrect inverter or BMS configuration.
- Unauthorized firmware modification or software changes.
- Unauthorized modification of the battery or BMS.
- Unauthorized repair or replacement of internal components.
- Improper or unauthorized parallel connection.
- Improper transportation or handling.

- Storage outside the specified storage conditions.
- Storage exceeding 3 months without following the manufacturer's applicable maintenance/recharging requirements.
- Use in applications or environments not approved by the manufacturer.
- Damage caused by external equipment or system components.
- Normal battery capacity degradation within the applicable warranty limits.
- Cosmetic damage that does not affect battery functionality or safety.
- Damage resulting from accident, abuse, negligence, misuse, or force majeure.
- Any modification that directly causes or contributes to the claimed failure.

15. WARRANTY CLAIM PROCEDURE

For a warranty claim, the customer shall provide the following information where applicable:

- Battery serial number
- Purchase invoice
- Installation date/details
- Inverter make and model
- Inverter serial number
- Description of the failure
- BMS error/protection codes
- Inverter error codes
- Battery voltage
- Charge/discharge current
- Relevant photographs/videos
- CAN/RS485 communication data or logs, where available
- Other diagnostic information requested by the manufacturer

The manufacturer may request additional information or testing before determining warranty eligibility.

16. WARRANTY INSPECTION AND FAILURE ANALYSIS

Upon receiving a warranty claim, the manufacturer may perform inspection and failure analysis to determine the cause of failure.

The inspection may include:

- Visual inspection
- Voltage measurement

- Cell voltage analysis
- BMS functionality testing
- Charge/discharge testing
- Capacity testing
- Communication testing
- Internal resistance evaluation
- Error/protection log analysis
- Physical inspection of internal components, where necessary
- Other diagnostic tests considered necessary by the manufacturer

Warranty eligibility shall be determined based on the inspection results and the applicable terms of this warranty.

17. REPAIR AND REPLACEMENT

For a valid warranty claim, the manufacturer shall follow the following remedy:

First Remedy – Repair

The manufacturer shall first attempt to repair the defective battery or applicable component, where technically and safely possible.

Replacement

If the battery or relevant component is determined to be unrepairable, the manufacturer may replace the affected unit/component with an equivalent product.

Replacement may be made with a new or refurbished equivalent component/product, subject to product availability and applicable law.

The decision regarding repair or replacement shall be made by the manufacturer based on the failure analysis.

18. WARRANTY AFTER REPAIR OR REPLACEMENT

Repair or replacement under warranty shall not automatically restart the original warranty period.

The repaired or replacement battery/component shall generally remain covered only for the remaining period of the original warranty, unless otherwise agreed in writing by the manufacturer.

19. WARRANTY VOID / CLAIM REJECTION CONDITIONS

A warranty claim may be rejected where the manufacturer determines that the claimed failure was caused by:

Unauthorized modification.

Breaking or removing a warranty seal shall not, by itself, automatically void the warranty.

- Unauthorized repair.
- Incorrect wiring.
- Replacement with unauthorized components.
- Intentional misuse or abuse.
- Physical damage.
- Incorrect installation.
- Operation outside specified limits.
- Improper storage.
- Improper parallel connection.
- Incorrect inverter configuration.
- External electrical or environmental damage.
- Tampering with BMS protection or safety circuitry.

Opening the battery enclosure or breaking the seal alone shall not be sufficient grounds for rejection.

20. TRANSFER OF WARRANTY

Unless otherwise agreed in writing, the warranty is applicable to the original purchaser and the original installed battery system.

Any transfer of the battery to another owner or installation location should be notified to and approved by the manufacturer where required.

21. GENERAL CONDITIONS

This warranty is applicable only to the specified product.

The customer must retain the original purchase invoice for warranty verification.

The battery serial number must remain identifiable.

Warranty claims are subject to verification by the manufacturer.

The manufacturer reserves the right to request diagnostic information and conduct testing before approving a claim.

Product specifications may be modified for future production without affecting warranties already issued.

This warranty shall be interpreted together with the manufacturer's installation, operation, maintenance, and safety instructions.



Where any provision of this warranty conflicts with mandatory applicable law, the applicable law shall prevail.

WARRANTY SUMMARY

Warranty Item	Warranty Condition
Product	51.2 V / 100 Ah LFP ESS Battery
Nominal Energy	5.12 kWh
Warranty Period	10 Years
Cycle Warranty	4,000 Equivalent Full Cycles
Warranty Start	Date of Invoice
Minimum Capacity Retention	70%
Maximum Continuous Charge Current	105 A
Maximum Continuous Discharge Current	105 A
Recommended Charge Current	50 A
Maximum Recommended DoD	90%
Charging Temperature	0°C to 55°C
Discharging Temperature	-20°C to 55°C
Storage SOC	30%–50%
Maximum Storage Period	3 Months
Communication	CAN / RS485
Enclosure Rating	IP20
Warranty Remedy	Repair first; replacement if unrepairable
Seal	Breaking seal does not automatically void warranty