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Freedom Lite Battery Guarantee

Major Revision Released - September 2019

Minor Update – March 2020

Version Notice: This warranty update was issued on 6 September 2019 and is applicable to the respective products purchased from Freedom Won from 1 September 2019 onwards. For products sold by Freedom Won prior to this date please refer to the previous version of the Freedom Won warranty dated January 2018.

The range of Freedom Lite lithium iron phosphate batteries is supported by an extensive product guarantee, which is backed by Freedom Won Pty Ltd or its parent company or companies where applicable.

This warranty covers the following battery ranges:

- Freedom Lite Home (5kWh to 30kWh)
- Freedom Lite Business (40kWh to 80kWh)
- Freedom Lite Commercial (100kWh to 600kWh)
- Freedom Lite Industrial (800kWh to 2500kWh)
- Freedom Lite 5U and 7U rack mount telecom (5kWh to 30kWh)

Freedom Won guarantees that the service life of the Freedom Lite battery will achieve at least a **10 year** service life or deliver at least **4 000 charge-discharge cycles**, whichever event should first occur.

The battery is defined as satisfactorily achieving this service duration or duty if it is still able to produce 70% or more of the model's stated new capacity in kWh from a complete discharge. The discharge test shall be done at a current equal to or less than 20% of the Ah rating, i.e.

- Amperes during discharge test = $0.20 \times \text{Freedom Lite Ah rating}$

Example for Freedom Lite Home 10/7

- Amperes during discharge test = $0.20 \times 200 = 40 \text{ Amps}$

The integrated battery management system (BMS) is capable of calculating and recording the aggregate number of cycles that have been completed by the battery where one complete cycle in terms of this warranty is a discharge from 100% State of Charge (SoC) to 20% SoC – which is equivalent to 80% Depth of Discharge

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(DoD) – followed by a charge again to 100% SoC. Discharges deeper than 80% DoD and less than 80% DoD are also counted into to the total number of cycles on a pro rata basis.

Each Freedom Lite battery is preconfigured to prevent ordinary discharge below 90% DoD. 100% DoD is allowed when the discharge from 90% to 100% DoD is only for the purposes of supplying the standby power draw to the inverter when there is no AC input. It is the responsibility of the installer or designer to ensure that the battery and solar capacities are adequate to achieve an **average** daily DoD of 80% or less or to ensure that the inverter reverts to grid consumption at or above 80% DoD (for grid connected systems). The additional margin (from 80% to 90% DoD) is only intended to be used for abnormal circumstances such as grid outages for grid connected systems and for cloudy weather or above expected demand on off grid systems. The Lite should not spend more than 20% of its warranty life (equivalent to 2 years) below 20% SoC to maintain the warranty. This parameter is recorded by the BMS.

The Freedom Lite should not be kept and/or operated in a location that regularly experiences extended periods of ambient temperatures above 45 degrees Celsius or below zero degrees Celsius. The extreme ambient operating range is -20 to +60 degrees Celsius. In terms of the warranty the battery may not be charged below 0°C although there is no restriction for discharge below 0° down to -20°C. The following temperature related operation will void the warranty:

- If the battery records internal temperatures below -20°C
- If the battery records internal temperatures above 60°C
- If the BMS records more than an **average** of five hours per day in the 10 year warranty period in the temperature region 45-50°C
- If the BMS records more than an **average** of one hour per day in the 10 year warranty period in the temperature region 50-60°C.

The Lite should also be installed indoors away from direct sunlight, precipitation, extreme moisture and sea spray.

If the Lite is installed in a small room with inverters and charge controllers it may be necessary to install an extraction fan to extract the heat from the inverters and charge controllers. Similarly if the system is installed in a container the container must be out of direct sunlight or for hot environments fitted with insulation cladding and extraction (or pressurization) fans.

Should a Lite be found unable to produce 70% of its 'as new capacity' in kWh prior to the 10 year service life, or 4 000 cycles being achieved Freedom Won undertakes to service the battery to ensure that it thereafter again meets this performance objective. This service may involve changing settings in the BMS profile and or replacement of any number of cells.

The capacity of the battery will be confirmed using kWh readings taken from the BMS, which may be corroborated by any suitable inverter. The discharge test shall be conducted at 0,2C from 100% SoC.

The Lite is fitted with a high performance DC breaker. This device has an operational cycle life limit that is reduced by high inrush currents into some types of connected battery inverters and must not be re-closed repeatedly if the breaker has been tripping because of an internal or external problem. This breaker may only be closed a maximum of 150 times in the warranty period (this is recorded by the BMS). If this number is exceeded the warranty will exclude any failures in the Lite relating to the breaker. The breaker should not be re-closed after a trip without first contacting Freedom Won or an accredited representative for troubleshooting assistance.

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Freedom Won or one of its designated partners will perform the service on site or alternatively (at Freedom Won's discretion) pay for removal and shipping to the nearest service centre at no charge within the borders of the following countries:

1. South Africa,
2. Zambia,
3. Zimbabwe,
4. Namibia,
5. Botswana,
6. Mozambique
7. Malawi
8. Senegal
9. Ghana
10. Mauritius
11. European Union Countries
12. Philippines
13. Australia
14. New Zealand
15. and other countries added to the guarantee from time to time.

If the country in question is not included in the guarantee scheme Freedom Won requires the unit to be returned to a Freedom Won facility at the owners cost or alternatively Freedom Won travel and accommodation charges will apply to visit the owner's site.

A report on a suspected underperforming battery must be received by Freedom Won before the warranty period has elapsed or the cycles are exceeded. Freedom Won will require the owner or installer to adequately demonstrate the lack of performance or alternatively to facilitate remote internet access for Freedom Won to the battery in order to run the performance test. If the performance objective can be achieved simply by changing settings on the BMS then Freedom Won must be provided with remote internet access via a local computer connected to the battery with the correct adapter to complete the changes.

Every Freedom Lite is fitted with a tamper seal on the back cover. If this seal is damaged or compromised in any way or there is other evidence of tampering or abuse the guarantee becomes void.

Apart from the lithium cells themselves, the guarantee extends to the proper operation of the remainder of the devices in or on the Lite provided that it has been operated strictly within the parameters described in the specification sheet and installation manual.

The exterior paint coating on the Lite is only guaranteed so far as it has been properly applied and a claim must be supported by evidence of defective materials or application – damage to the coating caused by impact or scuffing is not covered in this guarantee.

The warranty is only valid and applicable if the Lite was installed by an authorized Freedom Lite installer or approved and commissioned by Freedom Won. Should the Lite need to be relocated this must also be done by an authorized installer. The warranty is also only valid if the Lite and all associated charges such as delivery costs is fully paid for by the installer or if necessary directly by the owner within 60 days of the final amount becoming due.

The guarantee period begins at the date of the final invoice, which shall include reference to the serial number of the battery as depicted on the tamper seal.

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Lite batteries that are outside of the warranty period will still receive full support from Freedom Won for 15 years after the date of initial purchase from Freedom Won.

Thus confirmed by signature

A handwritten signature in black ink, appearing to read "Antony John English".

Antony John English

Co-founder and Director

Freedom Won Pty Ltd

Updated: 04 March 2020 (minor correction)