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Freedom Won megaTower® Battery Guarantee

Africa Region

Released – May 2023

The megaTower lithium iron phosphate battery is supported by an extensive product guarantee, which is backed by Freedom Won (Pty) Ltd, registered and operational in the Republic of South Africa since 2012.

Two performance warranty options may apply to the megaTower depending on the operational duty and/or environmental conditions. The STANDARD PERFORMANCE WARRANTY applies for batteries operated close to the ideal conditions. The ALTERNATE PERFORMANCE WARRANTY applies to batteries operated in heavy-duty and less ideal environmental conditions. The performance of the battery in this context refers to the number of cycles the battery offers, linked to the battery storage capacity remaining.

The PERFORMANCE WARRANTY – GENERAL CONDITIONS section covers aspects applicable to both performance warranty options.

The GENERAL WARRANTY covers aspects that do not relate to the environmental or duty conditions of operation or battery performance.

STANDARD PERFORMANCE WARRANTY

The STANDARD PERFORMANCE WARRANTY from Freedom Won guarantees that the Freedom Won megaTower battery will achieve at least a **10-year** service life or deliver an equivalent in kWh of at least **8 000 charge-discharge cycles**, whichever event should first occur.

To qualify for the STANDARD PERFORMANCE WARRANTY The Freedom Won megaTower must not be kept and/or operated in an environment that regularly experiences extended periods of ambient temperatures above 25 degrees Celsius or below zero degrees Celsius. The extreme battery internal operating range applicable to this warranty is -20 to +40 degrees Celsius. In terms of the warranty, the battery may not be charged below 0°C, although discharge is allowed down to -20°C. The following temperature scenarios will cause the STANDARD WARRANTY to be voided:

- Internal battery temperatures below -20°C,
- Internal battery temperatures above 40°C,
- Internal battery temperatures experienced for more than **two hours per day on average** in the 10-year warranty period in the temperature **region 25-30°C**,
- Internal battery temperatures experienced for more than **30 minutes per day on average** in the 10-year warranty period in the temperature **region 30-35°C**,
- Internal battery temperatures experienced for more than **1 minute per day on average** in the 10-year warranty period in the temperature **region 35-40°C**,

The STANDARD PERFORMANCE WARRANTY requires that the megaTower is never operated above 0.5C in discharge, and 0.25C in charge. The designer must ensure that the system setup will comply with these limitations to maintain validity of the STANDARD PERFORMANCE WARRANTY.

To qualify for the STANDARD PERFORMANCE WARRANTY, the Freedom Won megaTower must not spend more than 10% of its warranty life (equivalent to 1 year in total) below 15% SoC.

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Should any of the above parameters be exceeded the warranty may be transferred to the ALTERNATE PERFORMANCE WARRANTY should the battery conditions comply with those of the ALTERNATE PERFORMANCE WARRANTY.

The battery room temperature must be maintained at a sufficiently low temperature to ensure that the internal temperature of the battery remains within the specified limits and durations. This may require room temperatures anywhere between 16°C and 25°C, depending on the duty of the battery. A hard-working battery may require a room temperature at the lower end of this range. In hot environments (with ambient temperatures regularly exceeding 25°C) the battery room **must** be fitted with air conditioning to maintain a room temperature in the required range to qualify for the STANDARD PERFORMANCE WARRANTY.

Note: Above temperature restrictions relate to battery longevity and do not pertain to safety concerns. The battery is designed to operate safely up to 60°C.

ALTERNATE PERFORMANCE WARRANTY

The ALTERNATE PERFORMANCE WARRANTY from Freedom Won guarantees that the Freedom Won megaTower battery will achieve at least a **10-year** service life or deliver an equivalent in kWh of at least **6 000 charge-discharge cycles**, whichever event should first occur.

To qualify for the ALTERNATE PERFORMANCE WARRANTY The Freedom Won megaTower must not be kept and/or operated in a location that regularly experiences extended periods of ambient temperatures above 35 degrees Celsius or below zero degrees Celsius. The extreme battery internal operating range is -20 to +60 degrees Celsius. In terms of the warranty, the battery may not be charged below 0°C, although discharge is allowed down to -20°C. The following temperature scenarios will void the STANDARD WARRANTY:

- Internal battery temperatures below -20°C
- Internal battery temperatures above 60°C
- Internal battery temperatures experienced for more than **two hours per day on average** in the 10-year warranty period in the temperature region 30-35°C
- Internal battery temperatures experienced for more than **30 minutes per day on average** in the 10-year warranty period in the temperature region 35-45°C
- Internal battery temperatures experienced for more than **1 minute per day on average** in the 10-year warranty period in the temperature region 45-60°C

Should any of the above parameters be exceeded the ALTERNATE PERFORMANCE WARRANTY on the battery will become void.

The ALTERNATE PERFORMANCE WARRANTY requires that the megaTower is never operated above the current or power levels stipulated in the specification sheet. The designer must ensure that the system setup will comply with these limitations to maintain validity of the warranty.

To qualify for the ALTERNATE PERFORMANCE WARRANTY the megaTower must not spend more than 10% of its warranty life (equivalent to 1 year in total) below 15% SoC.

The battery room temperature must be maintained at a sufficiently low temperature to ensure that the internal temperature of the battery remains within the specified limits and durations. This may require room temperatures anywhere between 16°C and 25°C, depending on the duty of the battery. A hard-working battery may require a room temperature at the lower end of this range. In hot environments (with ambient

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temperatures regularly exceeding 35°C) the battery room **must** be fitted with air conditioning to maintain a room temperature in the required range to maintain the ALTERNATE PERFORMANCE WARRANTY conditions.

Note: Above temperature restrictions relate to battery longevity and do not pertain to safety concerns. The battery is designed to operate safely up to 60°C.

PERFORMANCE WARRANTY – GENERAL CONDITIONS

Under the applicable performance warranty, the battery is defined as satisfactorily achieving the service duration or duty if it is still able to produce 60% 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 10% of the Ah rating, or 0.1C, i.e.

- Amperes during discharge test = 0.10 x Freedom Won megaTower Ah rating

Example (320Ah cell version):

- Amperes during discharge test = 0.10 x 320 = 32 Amps

The integrated battery management system (BMS) calculates and records the pro rata 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 (DoD) – followed by a charge again to 100% SoC. Discharge deeper than 80% DoD and less than 80% DoD is also counted into the total number of cycles on a pro-rata basis. The 80% DoD discharge and recharge warranty cycle is based on the observed capacity of the battery throughout the battery's warranty life, which is assumed to reduce linearly through the design life to the End of Life (EoL) capacity of 60%.

Each Freedom Won megaTower 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.

The performance warranties apply to batteries operating in a daily cycling scenario, where **on average** the battery runs through at least one quarter of one warranty cycle per day. The battery may not exceed more than 2.25 warranty cycles per day.

GENERAL WARRANTY

The megaTower must be installed indoors away from direct sunlight, precipitation, extreme moisture, and sea spray. Failure relating to water/moisture ingress or corrosion resulting from the presence of environmental corrosion agents is not covered by the warranty.

Should a megaTower be found unable to produce 60% or more of its 'as new capacity' in kWh prior to the 10-year service life, or having achieved the cycles applicable to the applicable valid warranty, Freedom Won undertakes to service the battery or to replace any number of modules with new or used modules of similar age or newer to ensure that the battery thereafter again meets this performance objective.

The capacity of the battery will be confirmed using kWh readings taken from the BMS, which may be corroborated by any suitable DC meter. The discharge test shall be conducted at 0,1C from 100% SoC.

The megaTower is fitted with a high-performance DC isolator. This device has an operational cycle life limit that is reduced by high inrush currents, and therefore must not be closed without first ensuring that the DC

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bus of the connected devices (for example inverters and DC charge controllers) has been pre-charged first. Each master module contains two DC contactors. These two contactors must be closed on at least one pack (tower) before the DC isolator is closed. Failure of either the DC Isolator or the contactors relating to neglecting to pre-charge the DC bus and following the startup instructions in the manual is not covered by this warranty.

Damage relating to a lightning strike, surges, or other external causes is not covered by the warranty.

Freedom Won or one of its designated partners may perform necessary servicing on site, or alternatively (at Freedom Won's discretion) require shipping of a faulty megaTower module to Freedom Won or an accredited service centre. If a Freedom Won or partner technician is required to travel to a site to perform maintenance related to a warranty claim, commercial or standard travel costs will be covered by the warranty. Non-commercial travel (air charter etc.) and special fees (to enter parks etc.) are not covered by Freedom Won. Should Freedom Won, in relation to a warranty claim, request a megaTower module to be transported to Freedom Won or a service centre, the cost of the preparation for transport, transport to and from the service centre, and re-installation, is not covered by this warranty. The cost of the installer or service technician employed by the EPC company responsible for the site being required to travel to the site for troubleshooting prior to a warranty claim is not covered by the warranty.

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.

Every Freedom Won megaTower module is fitted with a tamper seal on the cover. If this seal is damaged or compromised in any way without authorization from Freedom Won, or there is other evidence of tampering or abuse the guarantee becomes void.

Apart from the lithium cells themselves covered in the performance warranty, the 10-year guarantee extends to the proper operation of the remainder of the devices in or on the megaTower, provided that it has been operated strictly within the parameters described in the specification sheet and installation manual.

The exterior paint coating on the megaTower 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 by the warranty.

The warranty is only valid and applicable if the megaTower was installed by an authorized Freedom Won megaTower installer or approved and commissioned by Freedom Won. Should the megaTower need to be relocated this must also be done by an authorized installer. The warranty is also only valid if the megaTower purchase price 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. Freedom Won reserves the right to refuse warranty support on a battery that has not been fully paid for i.e. in the case of outstanding payments to the installer or to Freedom Won.

The guarantee period begins at the date of the final sale invoice, which shall include reference to the serial number of the battery as depicted on the megaTower nameplate, provided that the delay from initial purchase from Freedom Won is not more than 6 months earlier than the date of the final sale invoice. In such instances, the date of the initial purchase from Freedom Won will trigger the warranty duration start date.

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Should the ALTERNATE PERFORMANCE WARRANTY become void, the GENERAL WARRANTY shall also become void by default.

megaTower 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.

EXTENDED WARRANTIES

For certain projects, a custom warranty may be negotiated that extends the time aspect of the performance guarantee to 15 years. Such an extension will carry additional prerequisites that may be negotiated on a per-project basis during the pre-order phase.

Warranty claims pertaining to megaTowers sold and operated in Africa:

Attention: Service Manager

Email: support@freedomwon.co.za

Physical Address:

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