

Owner's Guide



Goodwe Energy Storage Systems

EM and SBP Series Inverter &

Lynx Home U-Series Battery

*Solahart PV and battery systems must be installed and serviced by a suitably qualified person.
Please leave this guide with the system owner.*



Warning: For continued safety of this Battery system it must be installed, operated and maintained in accordance with these instructions and the installation guides supplied with the Battery, Inverter and Battery Interface.



Warning: Only suitably qualified and accredited personnel should perform work on PV and/or Battery systems, such as design, installation, commissioning, maintenance and repairs. Be sure to follow the safety instructions for all system components. It is also important to observe relevant local codes and regulations for health and safety and accident prevention.

Only Solahart parts and Solahart approved parts may be used. No substitute parts may be used without prior approval from Solahart Industries Pty Ltd. Only parts supplied by Solahart Industries Pty Ltd are covered by the Solahart warranty.

The warranty can become void if safety devices are tampered with or if the installation is not in accordance with these instructions.

PATENTS

This battery system may be protected by one or more patents or registered designs in the name of Solahart Industries Pty Ltd.

TRADE MARKS

® Registered trademark of Solahart Industries Pty Ltd.
™ Trademark of Solahart Industries Pty Ltd.

Note: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences, which may arise as a result of its application.

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

During installation, testing and inspection, adherence to all the safety instructions is mandatory.

SAFETY SYMBOLS

The following symbols are used in this document to highlight important information:



Warning: **Warning** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Caution: **Caution** indicates potentially hazardous situation which, if not avoided, could result in minor or moderate injury and damage to or destruction of the product.

Note: **Note** indicates additional information intended to assist in the understanding of the text or an important step that leads to optimal results but is not safety or damage related.

GENERAL SAFETY INFORMATION



Warning: Adhere to the instructions in this document in addition to each system component installation guide. Failure to follow any instructions or warnings in the supplied documentation can result in electric shock, serious injury, or death.



Warning: Only qualified personnel should perform work on photovoltaic and Battery systems.



Warning: A Battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions.



Warning: Ensure electrical connection / disconnection is performed only when the relevant circuit is isolated. Do not connect / disconnect wiring under load conditions.



Warning: Do not attempt to disassemble, repair, tamper with, or modify any system component.



Warning: Do not expose any component to direct flame or heat sources.



Warning: Do not install any component that is defective, appears cracked, broken, or otherwise damaged.



Warning: Do not install the system in potentially hazardous locations.



Warning: Do not immerse any component in water or other liquids.



Caution: Ensure clearances are maintained around the Battery and System Components. Remove debris and other foreign objects from within the clearances areas.



Caution: Do not place any items on top of the Battery BCU.



Caution: Only Solahart supplied / approved components may be used.



Caution: Keep the Battery and Inverter system turned ON at all times. Do not turn OFF the system when leaving the home for an extended period of time.

ACTIONS TO UNDERTAKE IN THE EVENT OF AN EARTH FAULT ALARM OR TRIPPED AC/DC CIRCUIT BREAKER

1. Limit access to all parts of the PV and Battery system.
2. Contact Solahart Service on 1800 638 011 or your nearest Solahart dealer.

ABOUT YOUR BATTERY SYSTEM

INTRODUCTION

This Owner's Guide applies to the GoodWe EM-Series Inverter, Goodwe Lynx Home U-Series Battery and balance of system components. For more information regarding the specific operation of a PV system, refer to "Owners Guide - Solahart" for PV systems.

SYSTEM OVERVIEW A – COMPLETE PV AND BATTERY WITH BACKUP SYSTEM

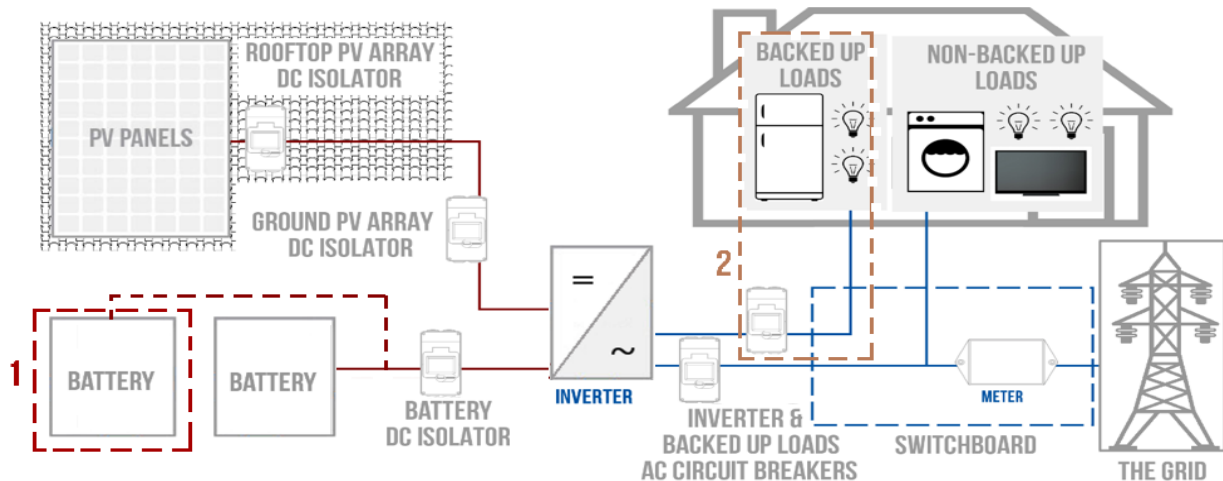


Figure 1 System Overview – Complete PV and Battery With Backup System

**Optional: 1. Additional battery stack(s), 2. Backup circuit.*

The Solahart Complete PV and Battery system consists of the following components:

- PV array – generates direct current (DC) power through the conversion of light energy from the sun.
- **Goodwe EM Series Inverter** – inverts the DC power generated from the PV array or supplied from the Goodwe Lynx U-Series Battery into alternating current (AC) power so it can be used in the home or exported to the grid. If configured, the inverter can also supply power to selected backed up loads during grid interruptions.

Note: Both the Inverter and house electrical wiring will need to be configured for backup functionality to operate. Your Solahart dealer will demonstrate and explain the operation of this configuration.

Note: A minimum Battery energy level (depth of discharge) can be reserved in case of a grid outage or just during normal operation. Discuss your requirements with the Solahart dealer to ensure the system is set correctly.

- Goodwe Lynx U-Series Battery – stores DC power generated by the PV array so the power can be used when the sun is not shining.
- PV Array DC Isolators – provides a means for isolating the PV array.
- Battery DC Isolator – provides a means of isolating the Battery.
- Inverter AC Isolator – provides overcurrent protection of the inverter and a method of isolating the PV System from the electrical distribution grid.
- Inverter Backup Load AC Isolator –provides a means of disconnecting the inverter from the backup loads (if applicable).

Note: It is optional to install an AC grid bypass switch on the Backup Circuit. Please confirm with the installer.

- Goodwe EzMeter – measures net electrical power to and from the grid.

For more information regarding the specific operation of a PV system, refer to the Solahart Owner's Guide – PV systems.

SYSTEM OVERVIEW B – RETROFIT BATTERY SYSTEM

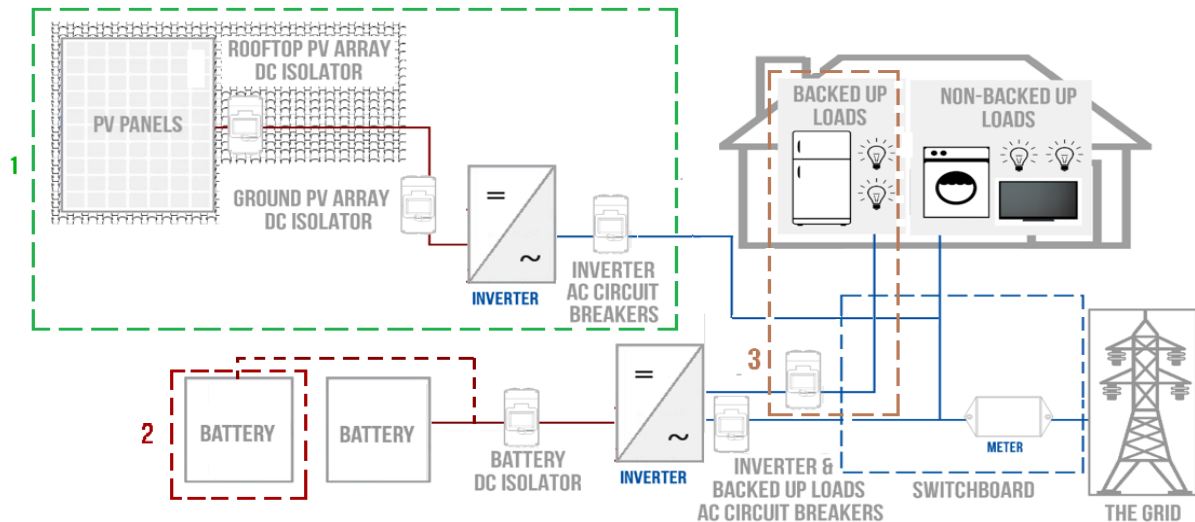


Figure 2 System Overview – Retrofit Battery System

1. Existing PV System 2. Optional additional battery stack(s) 3. Optional Backup circuit.

The Solahart Retrofit Battery system consists of the following components:

- **Goodwe SBP Series Inverter** – converts power between AC and DC to charge and discharge the GoodWe Lynx U-Series battery. If configured, the inverter can supply power to selected backed up loads during grid interruptions.

Note: Both the Inverter and house wiring will need to be configured for backup functionality to operate. Your Solahart dealer will demonstrate and explain the operation of this configuration.

Note: A minimum Battery energy level (depth of discharge) can be reserved in case of a grid outage or just during normal operation. Discuss your requirements with the Solahart dealer to ensure the system is set correctly.

- Goodwe Lynx U-Series Battery – stores power generated by the PV array or supplied from the grid so the power can be used when the sun is not shining.
- Battery Interface – manages communication and power between the inverter and battery.
- PV Array DC Isolators – provides means for isolating the PV array.
- Battery DC Isolator – provides a means of isolating the Battery.
- Inverter AC Isolator – provides overcurrent protection of the inverter and a method of isolating the PV System from the electrical distribution grid.
- **Note:** it is optional to install an AC grid bypass switch on the Backup Circuit. Please confirm with the installer.
- Inverter Backup Load AC Isolator –provides a means of disconnecting the inverter from the backup loads.

Note: it is optional to install an AC grid bypass switch on the Backup Circuit. Please confirm with the installer.

- Goodwe EzMeter – measures net electrical power to and from the grid.

BASIC SYSTEM OPERATION

The Solahart Complete and Retrofit systems increase energy independence by using the battery to store excess PV energy, which would otherwise be exported to the grid, so it can be used when required.

The Solahart Complete and Retrofit systems are programmed to maximise savings by minimising the power purchased from the grid. If the power delivered by the PV and Battery is insufficient to meet domestic demands, the power necessary to ensure the normal operation of the connected devices is drawn from the grid.

If the energy generated exceeds that required by property demands and the storage capacity of the Battery, your electrical network operator may allow the difference to be directly injected into the grid and become available to other users. Energy injected into the grid can be measured by electricity network operators as either gross (everything generated) or net (excess generated). Injected energy may or may not be purchased by the local electrical network operator according to national and local standards, and regulations.



Warning: Do not overload the backup circuit beyond the system specifications.



Warning: In the event any circuit breakers continue to trip, please contact your Solahart Dealer



Warning: Do not switch the battery off for extended period of time. It might cause damage.



Caution: If a backup changeover switch is not installed and the inverter is not operating, the loads and appliances on the backup circuit will not be supplied power.



Caution: Ensure that the backup reserve limit of the battery system is adjusted to an appropriate setting to provide backup power when the grid out. This can be set within the system monitoring portal.

INVERTER BACKUP CAPACITY

Inverter Model	Max. Power to Grid	Max. Power from Grid	Total Backup Capacity	Backup Max. AC Output Current	AC Output
GW5048-EM	5.0 kW	5.3 kW	2.3 kW	10 A	Single phase
GW5000S-BP	5.0 kVA	9.2 kVA	5.0 kVA	22.8 A	Single and three phase

Note: If the load on backup circuits exceed the inverter backup capacity, the inverter will shut down temporarily to protect itself.

- During normal operation, the inverter will restart after 60s.
- During grid outage, the inverter will restart once grid is re-connected.

BATTERY CAPACITY

Battery Model	Rated Capacity	Usable Capacity	Max. Discharge Power
LX U5.4-L (x1)	5.4 kWh	4.8 kWh	2.88 kW
LX U5.4-L (x2)	10.8 kWh	9.6 kWh	5.76 kW
LX U5.4-L (x3)	16.2 kWh	14.4 kWh	
LX U5.4-L (x4)	21.6 kWh	19.2 kWh	
LX U5.4-L (x5)	27.0 kWh	24.0 kWh	
LX U5.4-L (x6)	32.4 kWh	28.8 kWh	

OPERATING PROCEDURES

TO TURN PV AND BATTERY SYSTEM ON

1. Turn ON the Inverter AC Isolator at the Inverter (if installed) and the Solar Supply Main Switch at the AC switchboard.
2. Turn ON PV Array DC Isolator(s) located adjacent to inverter.
3. Turn ON DC circuit breaker between the battery and inverter.
4. Turn ON Battery DC Isolator(s) integrated within the battery unit.
5. Press the switch button on the battery within 30s otherwise an alarm will sound.
6. Systems with Backup function ONLY: Turn ON the Backed Up Loads AC Isolator.

Note: If enable switches are present on the Inverter and Battery Interface, ensure they are in the ON position.

Note: The “Solar Supply Main Switch” might be referred to “Main Switch (Inverter Supply)”.

7. Turn ON Battery by holding the On/Off button for 1 s (refer to Goodwe Lynx U-Series Battery User Manual) making sure that the SOC indicator light is ON.

TO TURN PV AND BATTERY SYSTEM OFF

1. Turn OFF the Solar Supply Main Switch at the AC switchboard and the Inverter AC Isolator at the Inverter (if installed).
2. Systems with Backup function ONLY: Turn OFF the Backed Up Loads AC Isolator.
3. Turn OFF the PV Array DC Isolator(s) (if installed) located adjacent to inverter.
4. Turn OFF Battery DC Isolator(s) integrated within the battery unit.
5. Turn OFF Battery by holding the On/Off button for 5 s (refer to Battery User Manual) making sure that SOC indicator light is OFF.



Warning: Depending upon the system there may be more than one PV Array DC Isolator.



Warning: To effectively isolate the wiring between the AC Isolator and switchboard, the Solar Supply Main Switch located in the switchboard must also be in the OFF position.



Warning: PV Array DC Isolators do not de-energise the PV array and array cabling.



Caution: If the Solahart Battery system is expected to be OFF for longer than one month, refer to the instructions supplied with the Battery.

INVERTER STATUS

The **EM Series** inverter status is indicated by several LEDs, please refer to the following table for details.

LED INDICATORS							
SYSTEM	BACK-UP	COM	BATTERY	GRID	ENERGY	WIFI	FAULT
INDICATOR	STATUS	EXPLANATION					
 SYSTEM		ON = SYSTEM IS READY					
		BLINK = SYSTEM IS STARTING UP					
		OFF = SYSTEM IS NOT OPERATING					
 BACK-UP		ON = BACK-UP IS READY / POWER AVAILABLE					
		OFF = BACK-UP IS OFF / NO POWER AVAILABLE					
 COM		ON = BMS AND METER COMMUNICATION OK					
		BLINK1 = METER COMMUNICATION OK, BMS COMMUNICATION FAIL					
		BLINK2 = BMS COMMUNICATION OK, METER COMMUNICATION FAIL					
		OFF = BMS AND METER COMMUNICATION FAIL					
 BATTERY		ON = BATTERY IS CHARGING					
		BLINK 1 = BATTERY IS DISCHARGING					
		BLINK 2 = BATTERY IS LOW / SOC IS LOW					
		OFF = BATTERY IS DISCONNECTED / NOT ACTIVE					
 GRID		ON = GRID IS ACTIVE AND CONNECTED					
		BLINK = GRID IS ACTIVE BUT NOT CONNECTED					
		OFF = GRID IS NOT ACTIVE					
 ENERGY		ON = CONSUMING ENERGY FROM GRID / BUYING					
		BLINK 1 = SUPPLYING ENERGY TO GRID / ZEROING					
		BLINK 2 = SUPPLYING ENERGY TO GRID / SELLING					
		OFF = GRID NOT CONNECTED OR SYSTEM NOT OPERATING					
 Wi-Fi		ON = Wi-Fi CONNECTED / ACTIVE					
		BLINK 1 = Wi-Fi SYSTEM RESETING					
		BLINK 2 = Wi-Fi NOT CONNECT TO ROUTER					
		BLINK 4 = Wi-Fi SERVER PROBLEM					
		OFF = Wi-Fi NOT ACTIVE					
 FAULT		ON = FAULT HAS OCCURRED					
		BLINK = OVERLOAD OF BACK-UP OUTPUT / REDUCE LOAD					
		OFF = NO FAULT					

Note: Refer to GoodWe EM Series inverter user manuals for simple troubleshooting procedures.

Note: If the Inverter LED Status indicates a FAULT, contact your nearest Solahart Dealer.

The **SPB Series** inverter status is indicated by several LEDs, please refer to the following table for details.

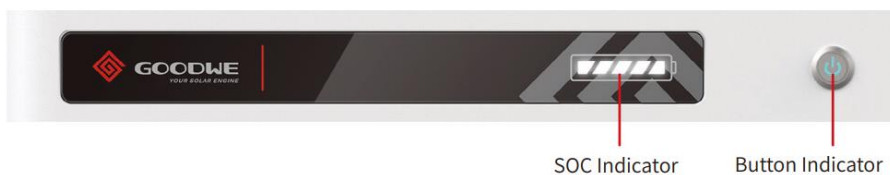
HYBRID LED INDICATORS							
SYSTEM	BACK-UP	COM	BATTERY	GRID	ENERGY	WiFi	FAULT
INDICATOR	STATUS		EXPLANATION				
 SYSTEM			ON = SYSTEM IS READY				
			BLINK = SYSTEM IS STARTING UP				
			OFF = SYSTEM IS NOT OPERATING				
 BACK-UP			ON = BACK-UP IS READY / POWER AVAILABLE				
			OFF = BACK-UP IS OFF / ON POWER AVAILABLE				
 COM			ON = BMS AND METER COMMUNICATION OK				
			BLINK 1 = METER COMMUNICATION OK, BMS COMMUNICATION FAIL				
			BLINK 2 = BMS COMMUNICATION OK, METER COMMUNICATION FAIL				
			OFF = BMS AND METER COMMUNICATION FAIL				
 BATTERY			ON = BATTERY IS CHARGING				
			BLINK 1 = BATTERY IS DISCHARGING				
			BLINK 2 = BATTERY IS LOW / SOC IS LOW				
			OFF = BATTERY IS DISCONNECTED / NOT ACTIVE				
 GRID			ON = BATTERY IS ACTIVE AND CONNECTED				
			BLINK = GRID IS ACTIVE BUT NOT CONNECTED				
			OFF = GRID IS NOT ACITVE				
 ENERGY			ON = CONSUMING ENERGY FROM GRID / BUYING				
			BLINK 1 = SUPPLYING ENERGY TO GRID / ZEROING				
			BLINK 2 = SUPPLYING ENERGY TO GRID / SELLING				
			OFF = GRID NOT CONNECTED OR SYSTEM NOT OPERATING				
 WiFi			ON = WiFi CONNECTED / ACTIVE				
			BLINK 1 = WiFi SYSTEM RESETING				
			BLINK 2 = WiFi NOT CONNECT TO ROUTER				
			BLINK 4 = WiFi SERVER PROBLEM				
			OFF = WiFi NOT ACTIVE				
 FAULT			ON = FAULT HAS OCCURRED				
			BLINK1 = OVERLOAD OF BACK-UP OUTPUT / REDUCE LOAD				
			OFF = NO FAULT				

Note: Refer to GoodWe SBP Series inverter user manuals for simple troubleshooting procudures.

Note: If the Inverter LED Status indicates a FAULT, contact your nearest Solahart Dealer.

BATTERY STATUS

The battery status is indicated by several LEDs, please refer to the following table for details.



Button Indicator	Status
Green Light	Standby, Working, Alert
Red Light	Faulty

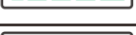
6.4.1 Normal State

Button Indicator	SOC Indicator	Description
Standby: green light blinking for 1s Working: green light on		SOC < 5%
		5% ≤ SOC < 25%
		25% ≤ SOC < 50%
		50% ≤ SOC < 75%
		75% ≤ SOC < 95%
		SOC ≥ 95%

6.4.2 Alerting

Button Indicator	SOC Indicator	Alerting	Solutions
Green light blinking for 3s		Temperature Exception	Power off and restart after 2 hours. If the problem persists, please contact GoodWe.
		High Temperature	
		Low Temperature Discharging	Power off and Wait for the temperature to increase. Restart the battery. If the problem persists, please contact GoodWe.
		Overcurrent when Charging	Restart the battery. If the problem persists, please contact GoodWe.
		Overcurrent When Discharging	
		Overvoltage	Press the button consecutively for 5 times in 10s if you can charge the battery. The voltage will recover to normal.
		Under voltage	
		Low Temperature Charging	Power off and Wait for the temperature to increase. Restart the battery. If the problem persists, please contact GoodWe.
		The cell voltage difference is extremely high	Power off and restart after 2 hours. If the problem persists, please contact GoodWe.

6.4.3 Faulty

Button Indicator	SOC Indicator	Fault	Solution
Red light blinking for 3s		Temp. sensor failure	Restart the battery. If the problem persists, please contact GoodWe for help.
		MOS Failure	
		Circuit-Breaker Failure	Turn on the Circuit-Breaker.If the problem persists, please contact GoodWe.
		Slaver Control Communication Lost	Power off and check the communication cable. Restart the battery.If the problem persists, please contact GoodWe.
		SN Failure	Contact GoodWe for help.
		Master Control Communication Lost	Power off and check the communication cable. Restart the battery.If the problem persists, please contact GoodWe.
		Inconsistent Software Version	Contact GoodWe for help.
		Multi Master Control Failure	Start all batteries in 30s after shutting down.
		MOS Overtemperature	Power off for 2 hours.If the problem persists, please contact GoodWe.
		Communication Failure	Power off and check the communication cable. Restart the battery. If the problem persists, please contact GoodWe.

Note: Refer to GoodWe Lynx U Series battery user manuals for simple troubleshooting procedures.

Note: If the Battery LED Status indicates a FAULT, contact your nearest Solahart Dealer.

ELECTRICAL SAFETY

SAFETY REQUIREMENTS

The voltages and currents produced by the Inverter & Battery system can be dangerous. Do not tamper with system cabling under any circumstances.

UNIQUE HAZARDS OF DC ELECTRICITY

Batteries typically operate using DC electricity. Once the current is flowing, breaking or opening a connection (e.g. disconnecting a DC cable from the Inverter) can cause a DC electrical arc. Unlike arcs occurring in conventional low voltage AC wiring, DC arcs are not self-extinguishing. They are a potentially lethal burn and fire hazard, capable of creating high temperatures that can destroy contacts and connectors.

EARTH FAULTS

An earth fault is a system fault where a short circuit is formed between the DC circuitry of the PV and Battery system and earth. As the system owner, please be aware of the method of communication of earth faults on your system. Refer to Earth Fault Alarms in the Solahart Owner's Guide for PV systems.

MAINTENANCE

GENERAL

The Solahart Inverter & Battery system has been designed for minimal and easy maintenance.

Note: Ensure that you have monitoring access to your Inverter & Battery System. If you do not, contact your nearest Solahart Dealer.

For recommended maintenance of the PV system, refer to the Solahart Owner's Guide for PV systems.

RECOMMENDED MAINTENANCE SCHEDULE

Maintenance Action	Frequency	Remarks
Check the inverter & battery LEDs and ensure no fault is present.	Weekly	If a fault is present, contact your Solahart dealer.
If you have an internet connected system, log in to your Inverter manufacturer's web portal and check that your system is operating, data has been logged and communication has been maintained. Ensure that the contact details of the system owner or responsible officer are up to date to ensure that Inverter & battery fault notifications are delivered.	Monthly	If you are unable to log in or your system is not operating correctly, contact your Solahart dealer.
If installed outside, clear leaves and other debris from the top surface of Inverter & Battery. Ensure correct clearances are maintained. If system is rarely used, ensure Inverter & Battery System is fully charged and then discharged to 25 - 50% level.	Quarterly	Maintains optimal airflow through the Battery. Prevents Battery discharge below acceptable limits.
If applicable, check backup circuit functionality.	Yearly	Contact your local Solahart dealer to arrange for a check up.
Clean the exterior of the Inverter & Battery with a soft, lint-free cloth. The cloth can be dampened with only water if needed. It should not be dripping.	When required	Do NOT use cleaning solvents to clean the Inverter & Battery.

SOLAHART PV SYSTEM AND/OR BATTERY WARRANTY - AUSTRALIA ONLY

IMPORTANT NOTE: This Limited Warranty covers a range of systems, products and components. This Warranty only applies in respect of the specific items you have purchased and which are delivered to you in conjunction with this hard copy Warranty document.

Your new PV System comprises a PV Module, an Inverter, a racking system and balance of system components (together the **PV System**). Alternatively, you may add components sourced from Solahart to your existing PV System, including a battery and associated products.

The PV System, the Battery, and any other components supplied by Solahart (collectively, the 'Products') are covered by this warranty given by Solahart Industries Pty Ltd ABN 45 064 945 848 of 1 Alan Street, Rydalmere NSW 2116 (**Solahart**). The terms of your warranty are set out below. This warranty consists of a number of parts (not all of which will apply, depending on the Products you have purchased):

- A. The specific warranty terms for Modules supplied by Solahart;
- B. The specific warranty terms for the GoodWe, Tesla and BYD Batteries;
- C. The specific warranty terms for Inverters – FIMER/ABB;
- D. The specific warranty terms for SolarEdge Inverters and associated SolarEdge products;
- E. The specific warranty terms for GoodWe Inverters and associated GoodWe products;
- F. The specific warranty terms for Solahart Gateway products;
- G. The specific warranty terms for the racking system;
- H. The specific warranty terms for the balance of the system;
- I. The specific warranty terms for the labour; and
- J. General terms which apply to all of the above.

This Limited Warranty is valid in Australia for all Products sold after 1 January 2021. If a subsequent version of this warranty is published, the terms of that warranty will apply to Products manufactured after the date specified in the subsequent version.

Solahart issues the following voluntary warranty to:

1. The end-user who purchased the System in Australia for their own use and put the System into use for the first time (the '**Original End-User**'); and
2. In the case of SolarEdge and GoodWe Products and the BYD Battery-Box System only, any owner of the Product subsequent to the Original End-User who provides proof of title transfer, provided that the Product has never been relocated from its original installation location without the express written consent of Solahart.

This warranty is in addition to any rights and remedies that you may have under the Australian Consumer Law.

Solahart offers national service through its Dealer network. Solahart will repair or replace parts subject to the terms of this Limited Warranty. Solahart, in addition can provide preventative maintenance and advice on the operation of the PV System. You can contact Solahart on 1800 638 011 to arrange a service call or to find out details about this warranty.

Notification of a claim under this Limited Warranty must be given without undue delay after detection of the defect and prior to the expiration of the applicable Warranty Period and in accordance with the procedure set out below.

PART A - MODULES

Defects warranty coverage for Solahart Modules and Hanwha Q Cells Modules

Subject to the terms of this Limited Warranty, Solahart warrants that the Solahart Modules and Hanwha Q Cells Modules will not show any material defects or processing defects for a period of:

- for Solahart315 modules, 12 years after the date of initial purchase of the Module (being the invoice date);
- for SolahartS2 range modules, 25 years after the date of initial purchase of the Module (being the invoice date);
- for Hanwha Q Cells modules, 5 years after the date of initial purchase of the Module (being the invoice date);
- for SolahartV1 and SolahartC1 range modules, 12 years after the date of installation of the Module,

if used and serviced in accordance with the relevant Module specifications and other product documents (the **'Module Warranty Period'**).

If a defect (as described above) occurs during the Module Warranty Period materially affecting the functionality of the Module, Solahart will, at its sole option:

1. Remedy the defect;
1. Supply a replacement Module free of defects; or
2. Repay the purchase price of the Module.

Module Defects Warranty Terms, Limitations and Exclusions

This limited warranty applies to a Module if used, serviced and maintained in accordance with the Solahart Owner's Guide which accompanies the Module.

This warranty does not apply to scratches, marks, mechanical wear, rust, mould, degradation, discoloration, stains, and other changes which occur after the delivery of the Modules but which do not result in any adverse effect on the mechanical stability of the Module or a reduction of performance which exceeds the levels set out in this warranty.

Solahart will pay the costs of a technical inspection and transport of defective or non-performing Modules to its nominated location. If the Module is found by Solahart not to be defective (including for any of the exclusions outlined in this warranty document), you agree to reimburse us for those costs on demand. All dismantling and reinstallation costs are your sole responsibility.

In the event of glass breakage, Solahart will also perform a static calculation to verify the substructure before accepting liability under this warranty.

Performance guarantee

A performance guarantee (as described in the relevant datasheet) is offered on each PV module by the source manufacturer, as identified on the relevant datasheet.

To make a claim in relation to that module performance guarantee, please contact your local Solahart dealer on 1800 638 011 for assistance with your claim with the source manufacturer.

PART B – BATTERIES

Warranty coverage for defects - GoodWe Battery

Subject to the terms of this Limited Warranty, Solahart warrants that the hardware of electronics and enclosure (including the battery cover, micro circuit breaker, and BMS PCBA) of the GoodWe Lynx Series battery system LX U 5.4L (**'GoodWe Battery'**) will be free of defects caused by improper workmanship or defective materials for 10 years starting from: (i) the original end user purchase date, if the end user is able to provide adequate documentation of the original purchase; or (ii) 6 months after the GoodWe Battery was manufactured if the original end user is not able to provide adequate documentation of the original purchase (**'GoodWe Battery Warranty Period'**).

Warranty coverage for capacity retention – GoodWe Battery

Subject to the terms of this Limited Warranty, Solahart warrants that the GoodWe Battery will retain the capacity levels specified in Exhibit A during the applicable periods identified in the Exhibit (each, a '**GoodWe Battery Capacity Retention Warranty Period**').

GoodWe Battery Warranty Terms

1. Any issue must be reported within 1 month of appearance.
2. The GoodWe Battery must be installed by a Solahart certified installer.
3. The end user must correctly operate and use the GoodWe Battery according to the Solahart Owner's Guide.
4. The end user must provide proof of the original purchase of the GoodWe Battery.
5. This warranty covers a capacity equivalent to one full cycle per day. The GoodWe Battery is not suitable for supplying life-sustaining medical devices or automotive application.
6. The GoodWe Battery must be installed with a GoodWe brand inverter. If you want to use any other brand inverter, please check with us or your Solahart dealer to make sure it's compatible in advance.
7. All GoodWe Batteries must have internet connection for monitoring. For those GoodWe Batteries that fail to meet this condition, this Limited Warranty for the GoodWe Batteries will not apply.

Remedies

If your GoodWe Battery fails to comply with the above defects or capacity retention warranties, Solahart will, at its sole discretion, elect to:

1. Fix the issue by changing configurations or updating software;
2. Repair the battery system by replacing with spare parts;
3. Exchange the battery system for a battery system that is brand new or refurbished but at least functionally equivalent to the original battery system, or an upgraded model which is either functionally equivalent or functionally superior to the original battery system. If the device is replaced within the GoodWe Battery Warranty Period, the remaining warranty period will be automatically transferred to the replacement unit. If the remaining warranty period is less than one year after the replacement, it will be extended to a 6 months' warranty. For every single battery system replacement case, the claimant must gather the necessary information and send the RMA report (by following Solahart's RMA template) to Solahart to confirm the RMA request, prior to the battery system being exchanged.

All parts of the battery system that Solahart replaces will become Solahart's property. If the battery system is found not to be covered by this Limited Warranty, Solahart reserves the right to charge a handling fee.

Warranty coverage - Tesla Powerwall Battery

Subject to the terms of this Limited Warranty, Solahart warrants that the Tesla Powerwall Battery will be free from defects for 5 years following its initial installation ('**Tesla Warranty Period**').

Remedies – Tesla Powerwall Battery

If your Tesla Powerwall Battery fails to comply with the above warranty during the Tesla Warranty Period, Solahart will, at its sole option:

1. Repair your Tesla Powerwall Battery;
2. Replace your Tesla Powerwall Battery with an equivalent product; or
3. Refund you the market price of an equivalent product at the time of the warrant claim.

Warranty coverage for defects - BYD Battery-Box System

Subject to the terms of this Limited Warranty, Solahart warrants that the BYD Battery-Box System will be free from defects in materials or workmanship for 10 years from the sales date as mentioned in the seller's invoice ('**Warranty Start Date**') to the Original End-User ('**BYD Warranty Period**').

Warranty coverage for capacity retention – BYD Battery-Box System

Subject to the terms of this Limited Warranty, Solahart warrants that the BYD Battery-Box System HVM series will: (i) retain sixty per cent (60%) of its **Usable Energy** (as specified in Exhibit B) for ten (10) years from the Warranty Start Date; or (ii) reach the **Minimum Throughput Energy** (as specified in Exhibit B), whichever comes first, on the condition that the Product is operated under normal use in accordance with Solahart Owner's Manual, (the 'Minimum Throughput Energy' is the total output energy of the Product recorded in the control module of the Product) (each a '**BYD Warranty Period**').

Warranty coverage for capacity retention for additional battery modules after the initial installation (Subsequent Product) – BYD Battery-Box System

Subject to the terms of this Limited Warranty, Solahart warrants that the Subsequent Product will: (i) retain sixty percent (60%) of Usable Energy (as specified in Exhibit B) for ten (10) years from the invoice date of the Subsequent Product; or (ii) reach the Minimum Throughput Energy (as specified in Exhibit B), whichever comes first, on the condition that the Product is operated under normal use in accordance with Solahart Owner's Manual ('**BYD Warranty Period**').

BYD Battery-Box System HVM series Warranty Terms and Exclusions

This warranty for Battery-Box System HVM series does not apply:

1. If access is not granted to the performance data of the Product over the Internet upon request after reporting the warranty claim or
2. To wear and tear in the appearance of the Product (including to any scratches, stains, mechanical wear, rust or mould) which does not impair its function.

Remedies for BYD Battery-Box System HVM series

If your BYD Battery-Box System fails to comply with the above warranties during the relevant BYD Warranty Period, Solahart will repair or replace the non-conforming Product or parts at no charge (or provide a partial refund) on the following conditions:

1. Whether to repair or replace the Product will be determined by Solahart in its sole discretion.
2. If the manufacture of the BYD Battery-Box System in issue has been discontinued at the time of the warranty claim, withdrawn from the market, or are otherwise unavailable Solahart may, at its discretion, replace it with a similar Product or part (which may include previously used parts that are equivalent to new in performance and reliability).
3. If Solahart does not repair or replace the defective Product or parts, Solahart will refund an amount of money calculated as follows:
 - i. If the Product cannot be operated (that is, the warranty for **defects** applies), the refund will be calculated as follows:
$$\text{Refund} = (\text{Maximum Claim Amount} \times 120) \times (120 - \text{number of months since Warranty Start Date});$$
 - ii. If the Product fails to comply with the Limited Performance Warranty for **capacity**, Solahart may calculate the refund using one of the two refund formulas below:
 - i) $\text{Refund} = \text{Maximum Claim Amount} \times \frac{(\text{warranted Minimum Throughput Energy} - \text{output energy of the Product recorded in the control module of the Product})}{\text{warranted Minimum Throughput Energy}};$ or
 - ii) $\text{Refund} = \text{Maximum Claim Amount} \times \frac{(\text{warranted remaining Useable Energy} - \text{remaining Useable Energy})}{\text{warranted Usable Energy}};$

Where:

- * the Maximum Claim Amount is the market value of the Product (or an equivalent Product) determined by Solahart if it were purchased new with no defects; and
- the Minimum Throughput Energy and the Usable Energy are specified in Exhibit B.

PART C – INVERTERS –FIMER/ABB

Warranty coverage for FIMER/ABB Inverters

Solahart warrants that a FIMER/ABB Inverter when provided by Solahart or a Solahart certified installer, when located at its original installation, will operate in accordance with its specifications in the Solahart's Owner's Guide and Installation Instructions for a period of: (a) ten (10) years from the date of purchase of the inverter for all UNO-DM Inverters; and (b) five (5) years from the date of purchase of the inverter for all other FIMER/ABB Inverters. If the Inverter fails to operate in accordance with its specifications and this materially affects the usability of the Inverter, Solahart will, at its sole option:

1. Repair the Inverter (either on site or at FIMER/ABB's factory); or
2. Provide a replacement Inverter (which might be new, reconditioned or an equivalent product).
3. Reimbursement.

Warranty Terms

If Solahart determines in its sole discretion that you do not have a valid warranty claim, Solahart may invoice you for any inspection and transportation costs of the returned Product.

Given the evolution of the technology, a replacement unit or a new device available at the time of the claim may not be compatible with the installed system. The warranty does not cover any expenses and/or costs incurred as part of the configuration, update or adjustment of the system to enable the installation of the Product. Solahart will not be liable under this warranty to pay any financial compensation, including compensation for any energy not supplied to the network by the system during any assistance activities, including preventive and corrective maintenance.

PART D – INVERTERS AND ASSOCIATED COMPONENTS – SOLAREEDGE

(In this Part D, a reference to "Products" is to the SolarEdge Products as described below).

Warranty coverage for SolarEdge Inverter

Subject to the terms of this Limited Warranty, Solahart provides a warranty against defects in workmanship and materials in relation to the SolarEdge Inverter, when located at its original installation, for a period of twelve (12) years commencing on the earlier of:

1. 4 months from the date the Inverter is shipped from the manufacturer; and
2. The date of installation of the Inverter.

Warranty coverage for StorEdge Interface

Subject to the terms of this Limited Warranty, Solahart provides a warranty against defects in workmanship and materials in relation to the StorEdge Interface for a period of ten (10) years commencing on the earlier of:

1. 4 months from the date the Interface is shipped from the manufacturer; and
2. The date of installation of the Interface.

Warranty coverage for Power Optimizers

Subject to the terms of this Limited Warranty, Solahart provides a warranty against defects in workmanship and materials in relation to the Power Optimizers for a period of twelve (12) years commencing on the earlier of:

1. 4 months from the date the Power Optimizers are shipped from the manufacturer; and
2. The date of installation of the Power Optimizers.

For all Power Optimizers with a part number ending in C, this warranty does not apply to the input connector.

Warranty coverage for Power Meter

Subject to the terms of this Limited Warranty, Solahart provides a warranty against defects in workmanship and materials in relation to the Power Meter for a period of five (5) years commencing on the earlier of:

1. 4 months from the date the Power Meter is shipped from the manufacturer; and
2. The date of installation of the Power Meter.

Remedies

If Solahart determines that a reported defect in relation to a Product is eligible for coverage under this Limited Warranty (including retention capacity), Solahart will, at its sole option:

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1. Repair the defective Product;
 2. Issue a credit note for the defective Product in an amount up to its actual value at the time buyer notifies Solahart of the defect, as determined by Solahart, for use toward the purchase of a new Product; or
 3. Provide the buyer with replacement units for the Product.

Exclusions

The Limited Warranty does not apply to components which are separate from the Products, ancillary equipment and consumables, such as, for example, cables, fuses, wires and connectors.

Beneficiary of Limited Warranty

The Limited Warranty only applies to the buyer who purchased the Products from Solahart, for use in accordance with their intended purpose ('**Original Buyer**'). The Limited Warranty may be transferred from the Original Buyer to any assignee, and will remain in effect for the time period remaining under the above Warranty Periods, provided that the Products are not moved outside their original country of installation and any reinstallation is done in accordance with the installation directions and use guidelines accompanying the Products.

PART E – INVERTERS AND ASSOCIATED PRODUCTS – GOODWE

(In this Part E, a reference to "Products" is to the GoodWe Products as described below).

Warranty coverage for GoodWe Inverter

Subject to the terms of this Limited Warranty, Solahart provides a warranty against defects in workmanship and materials in relation to the GoodWe Inverter, when located at its original installation, for a period of 5 (five) years commencing on the first installation date.

Warranty coverage for GoodWe Accessories

Subject to the terms of this Limited Warranty, Solahart provides a warranty against defects in workmanship and materials in relation to the GoodWe Accessories for a period of 5 (five) years commencing on the first installation date.

Remedies

If the Product malfunctions or becomes inoperative due to a defect in workmanship or material under normal operation as specified in the Product instructions during the relevant warranty period, Solahart will, at its sole option:

1. fix the issue by changing configurations or updating software;
2. repair the defective Product by replacing with spare parts; or
3. replace the defective Product with a Product that is new or refurbished but at least functionally equivalent to the original product, or upgraded model which has at least equivalent or upgraded functionality to the original product.

If a Product is replaced under this Limited Warranty, a warranty of 3 months or the balance of the warranty period on the replaced Product, whichever is the greater, will apply to the replacement Product.

This Limited Warranty covers the cost of labour work and materials to return the Product to working functionally and the transportation costs, including shipments, taxes, customs and duties, of replacements.

If a Product is found not to be covered by this Limited Warranty, Solahart reserves the right to charge a handling fee.

Beneficiary of Limited Warranty

The Limited Warranty only applies to:

1. the buyer who purchased the Product from Solahart and put them into operation for the first time; and
2. the first purchaser who acquires the Product from that buyer in their original installation.

PART F – SOLAHART GATEWAY PRODUCTS

(In this Part F, a reference to "Products" is to the Solahart Gateway Products as described below).

Warranty coverage for Solahart Gateway Products

Subject to the terms of this Limited Warranty, Solahart provides a warranty against defects in materials and workmanship under normal use for 5 years ('**Solahart Gateway Warranty Period**').

If a defect (as described above) occurs during the Solahart Gateway Warranty Period, Solahart will, at its sole option:

1. repair the defect; or
2. replace the Product with a refurbished or "as new" Product (which includes Products that may have been used for testing or demonstration purposes).

Warranty Terms

For Products capable of retaining user-generated data, repair of the Product may result in loss of the data.

The warranty only covers factory imperfections in materials and workmanship and does not cover normal wear and tear.

PART G – THE RACKING SYSTEM

Warranty coverage for the Racking System

Solahart warrants that the racking system supplied with the PV System shall be free from defects in material and workmanship for a period of five (5) years from the date of installation.

This Warranty shall be void if the racking system has been modified, repaired, or reworked in a manner not previously authorized by Solahart in writing. If within the specified Warranty period the racking system shall be reasonably proven to be defective, then Solahart shall repair or replace the defective component(s) at Solahart's sole discretion. Such repair or replacement shall completely satisfy and discharge all of Solahart's liability with respect to this Limited Warranty.

PART H - BALANCE OF THE SYSTEM

Warranty coverage for the balance of the system

The balance of the PV System (**BOS**) consists of PV module cabling, circuit breakers, isolators, enclosures and labels. Solahart warrants that the BOS supplied by it will operate in accordance with its specifications in the Owner's Guide and Installation Instructions for a period of five (5) years from the date of installation of the BOS. If the BOS fails to operate in accordance with its specifications and this materially affects the usability of the BOS, Solahart will, at its sole option, repair or replace the defective component.

PART I - LABOUR WARRANTY

Warranty coverage for labour – PV System

In addition to the above coverage, Solahart provides you with five (5) years of coverage, from the date of installation, for all labour costs involved with inspection by Solahart, removal or installation of warranted parts or components by Solahart of your PV System. Other than this five (5) years coverage, this Warranty does not cover, nor will Solahart reimburse, any on-site labor or other costs incurred in connection with the inspection, de-installation or removal of defective parts or components, or the re-installation of replaced or repaired parts or components for your PV System.

Warranty coverage for labour - SolarEdge Products

If Solahart determines that a reported defect in relation to a SolarEdge Product is eligible for coverage under this Limited Warranty and Solahart decides to repair the Product or part(s), warranty coverage includes labour and material costs necessarily incurred to correct the Product defect; and where Solahart decides to replace the Product or part(s) to which the Limited Warranty applies, warranty coverage includes the cost of the replacement of the Product or part(s). All other costs will be borne by you.

PART J - GENERAL TERMS

Back-up if sole or dominant power supply

If the PV System is to be the sole or dominant power supply for your business or application, you should ensure that you have back up redundancy if the PV System were to become inoperable for any reason. We suggest that you seek advice from your electrician or qualified professional about your needs and build backup redundancy into your electricity supply system.

Application of this warranty

This warranty only applies to Products provided by Solahart.

This warranty does not apply to defects, damage, malfunction, power output or service failures which have been caused by:

1. Repair, modifications, alterations, attachments or movement to or of the Product performed by someone other than a Solahart Dealer or a Solahart Accredited Service Agent or otherwise without the prior written consent of Solahart;
2. Abuse, malicious acts, misuse or abnormal use, accident, negligent acts, power failures or surges, any external or environmental causes or force majeure events, including, but not limited to, pollution, explosion, lightning, fire, smoke, charring, flood, hail, extreme temperature conditions or cold weather (including frost), high snow loads or any other natural disaster, any other force majeure event, pest damage, accidental breakage, actions of third parties, and any other events or accidents outside Solahart's control and/or not arising under normal operating conditions and/or exceed the specifications set out in the relevant product information and sound structured engineering;
3. Operating the Product in an unintended environment or under incorrect safety or protection conditions;
4. Failure to operate and/or maintain the Product in accordance with the applicable Solahart Owner's Guide and Installation Instructions;
5. Transport damage;
6. Wear and tear from adverse conditions including corrosive atmospheric conditions e.g. salt, ocean spray, dust storm or other weather damage;
7. Cosmetic defects;
8. Any improper attachment, installation or application of the Product, and in respect of the PV System, any insufficient framing if the PV System is a frameless module;
9. Any attempt to extend or reduce the life of the Product, whether by physical means, programming or otherwise, without the prior written consent of Solahart;
10. Removal and reinstallation at a location other than the original installation location, without the prior written consent of Solahart;
11. Insufficient ventilation of the Product;
12. Failure to observe the applicable safety regulations; or any factor identified in the applicable Solahart Owner's Guide and Installation Instructions; or
13. Ignoring safety warnings and instructions contained in all documents relevant to the applicable Product.

If your claim relates to a failure to operate in accordance with the Solahart Owner's Guide as a result of one of the factors listed above, Solahart may charge you at its standard rates for its time and materials related to your claim.

Where a Product covered by this Limited Warranty is added to an existing PV system, this Limited Warranty will only apply to the Product, not the rest of the PV System.

Without limiting the above exclusions:

1. In relation to the Solahart315, SolahartS2 and Hanwha Q Cells Modules, Solahart may refuse to honour this Warranty where: (a) modules have been used or handled, or modifications made to the modules, not in accordance with the relevant product information or written instructions issued by Solahart; (b) where the modules have been used for purposes or in circumstances not conforming to the product specifications; (c) the Modules have been damaged due to damage to or defects in the photovoltaic system in which the Modules are installed, due to factors such as voltage fluctuations, power peaks, excess voltage, power failure etc; (d) the Modules have been used in processes involving, or in conjunction with, other products without Solahart's prior written consent; (e) the serial number or product label has been removed, changed, deleted or made unrecognizable, or if the number or label is no longer clearly distinguishable for other reasons beyond Solahart's control and therefore it is not possible to conclusively identify the Modules; or (f) you do not report any visible defect immediately.

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2. In relation to the SolahartV1 and SolahartC1 range modules, Solahart may refuse to honour this Warranty where the module has been subjected to: (a) misuse, abuse, neglect or accident; (b) alteration, disassembly, reinstallation, and/or improper application; (b) non-observance of the Solahart Owner's Guide which accompanies the Module; (c) repair or modifications by persons that have not been previously authorized or approved by Solahart; (d) failures caused by equipment surrounding the Module which has not been provided by Solahart; (e) use under conditions or environments that exceed the product specifications and/or deviate from the Solahart Owner's Guide which accompanies the Module; (f) connection with any other manufacturer's PV modules, or modules that are of a different model or have different power output specifications that have not been previously authorized or approved by Solahart; (g) damage or defects caused by power failure surges, flood, fire, accidental breakage or other events caused by force of nature, force majeure, or other unforeseeable circumstances outside the range of influence of Solahart.
 3. In relation to GoodWe Batteries, the Warranty does not cover: (a) normal wear and tear; (b) faults or damages due to faulty installations or operations, or maintenance carried out against manufacturer's instructions by anyone other than Solahart or a Solahart certified installer; (c) unauthorized wiring or use with faulty or incompatible devices; (d) any changes to the installation not done in accordance with the applicable installation guide; (e) usage which does not comply with Australian safety regulations; (f) damage or defects caused by the end user's improper use, misuse, abuse, or any other actions which are inconsistent with the applicable Solahart Owner's Guide; (g) damage caused by the end user deliberately, or by willful act; (h) disassembly, repair or modifications performed by anyone other than Solahart or a Solahart certified installer/repairer or battery system modifications, design changes or part replacements not approved by Solahart; (i) faults or damages due to unforeseen circumstances, man-made factors, or force majeure including, but not limited to, stormy weather, flooding, overvoltage, pests, inappropriate handling, misuse, neglect, fire, water, lightning or other acts of nature; (j) vandalism, engraving, labels, irreversible marking or contamination or theft; (k) faults or damage caused by other factors not related to battery system quality issues; (l) any rust that appears on the device's enclosure caused by harsh environmental conditions, accidents and external influences; (m) faults or damage caused by exposure to sea coasts/saltwater or other aggressive atmospheres or environmental conditions without Solahart's written confirmation/approval prior to the installation; (n) damage caused during transport, incorrect product installation, removal, exceedance of temperature range during use and improper use; (o) the end user fails to provide the correct product serial number or the product serial number is undecipherable or has been modified without Solahart's permission; (p) defects arising due to a change in the applicable safety laws or regulations; (q) where the failure is not reported to Solahart within one month of appearance.
 4. In relation to Inverters, the Warranty does not cover: (a) mechanical damage during transportation of the defective unit when the Product is conveyed under the responsibility of a third party; (b) any modification made to the Product that has not been authorized by Solahart; (c) improper installation or commissioning of the Product; (d) improper use of the Product; (e) external event (over-voltage, malfunction of other) components of the system causing the Product to break down, etc.); (f) failure to comply with the Product documentation (Product manual, installation instructions, preventive maintenance); (g) force majeure, including lightning, overcurrents, natural disasters and fires; (h) external agents, including acid rain, salt, vandalism or other pollutants; (i) failure to (properly) implement safety rules; or (j) use in combination with equipment, products or materials not authorised by Solahart.
 5. In relation to BYD Battery-Box Products, the Warranty does not apply to any defect or deterioration resulting from: (a) the Product not being maintained or operated in accordance with the Operating Manual and Quick Start Guide; (b) exposure of the Product to movement or shaking following installation, or temperatures of more than 50°C and/or below -10°C; (c) failure to notify Solahart of the defect or deterioration within 30 days of becoming aware of the defect or deterioration; (d) modification or repair of the Product without Solahart's approval; (e) a force majeure event (e.g., natural catastrophes, such as flooding, fires, earthquakes, lightning or other abnormal environmental conditions, war, etc.); (f) changes to national or regional laws, regulations or directives; or (g) the Product not being operated for any period of 6 months or more.
 6. In relation to SolarEdge Products, the Warranty does not cover: (a) Products which are damaged due to failure to observe the applicable safety regulations governing the proper use of the Products; (b) Products which are operated not in strict accordance with the accompanying instruction documentation, including without limitation, not ensuring sufficient ventilation for the Product as described in the applicable installation guide; (c) Products which are opened, modified or disassembled in any way without Solahart's prior written consent; (d) Products which are used in combination with equipment, items or materials not permitted in the instruction documentation or in violation of local codes and standards; (e) cosmetic or superficial defects, dents, marks or scratches which do not influence the proper functioning of the Products; (f) Products damaged or rendered non-functional as a result of power surges, lightening, fire,
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flood, pest damage, accident, action of third parties, or other events beyond Solahart's reasonable control or not arising from normal operating conditions.

7. In relation to the GoodWe Products (other than the GoodWe Batteries), the Warranty does not cover: (a) normal wear and tear (including, without limitation, wear and tear of batteries); (b) faults or damages due to faulty installations, operations, maintenances against manufacturer's instructions by anyone other than Solahart or a Solahart certified installer; (c) disassembly, repair or modification by anyone other than Solahart or a Solahart certified installer; (d) faults or damages due to inappropriate handling, misuse, neglect, unpredictability factors, man-made factors, or force majeure (including stormy weather, flooding, lightning, over voltage, pests and fire, water, or other acts of nature); (e) product modified, design change or parts replaced which were not approved by the manufacturer; (f) vandalism, engraving, labels, irreversible marking or contamination or theft; (g) failure to comply with safety regulations (VDE, IEC, etc.); (h) faults or damages caused by other reasons not related to product quality problems; (i) rust appearing on the product's enclosure cause by harsh environment; (h) fault or damages caused by exposure to sea coasts/saltwater or other aggressive atmospheres or environmental conditions; or (i) accidents and external influences.
8. In relation to Tesla Powerwall Batteries, the Warranty does not apply to any defect resulting from any of the following: (a) abuse, misuse or negligence; (b) accidents or force majeure events, including but not limited to lightning, flood, earthquake, fire or other events outside the reasonable control of Solahart; (c) storage, installation, commissioning, modification or repair of your Tesla Powerwall Battery, or opening of the external casing of your Tesla Powerwall Battery, that is performed by anyone other than Solahart or a Solahart certified installer; (d) failure to operate or maintain your Tesla Powerwall Battery in accordance with the Solahart Owner's Guide; (e) any attempt to modify your Tesla Powerwall Battery, whether by physical means, programming or otherwise, without the express written consent of Solahart; or (f) removal and reinstallation of your Tesla Powerwall Battery at a location other than the original installation location, without the express written consent of Solahart. In order to provide this Warranty for the full five (5) year warranty period, Solahart requires the ability to update your Tesla Powerwall Battery through remote firmware upgrades. Installation of these remote upgrades may interrupt the operation of your Tesla Powerwall Battery for a short period. By installing your Tesla Powerwall Battery and connecting it to the internet, you consent to Solahart or its partners updating your Tesla Powerwall Battery through these remote upgrades from time to time, without further notice to you. If your Tesla Powerwall Battery is not connected to the Internet for an extended period, we may not be able to provide important remote firmware upgrades. In these circumstances, we may not be able to honour the full five (5) year Warranty. The Warranty for Tesla Powerwall Batteries will not apply to (a) normal wear and tear or deterioration, or superficial defects, dents or marks that do not impact the performance of your Tesla Powerwall Battery; or (b) noise or vibration that is not excessive or uncharacteristic and does not impact your Tesla Powerwall Battery's performance.
9. In relation to Solahart Gateway Products, the Warranty does not apply to: (a) damage or fault caused by operating the Solahart Gateway Product outside the permitted or intended uses described in the applicable installation guide or arising from failure to follow instructions on use of the Solahart Gateway Product; (b) consumable parts, unless damage has occurred due to a defect in materials or workmanship; (c) cosmetic damage, including scratches, dents and broken plastic on ports, that does not otherwise affect the Solahart Gateway Product's functionality or materially impair its use; (d) any abuse, misuse, neglect, mishandling or misapplication (including opening up, modifying or tampering with the hardware); (e) damage or fault caused by a fault with a third-party product not provided by Solahart; (f) any unusual hazards affecting the Solahart Gateway Product or failure to provide an environment within the specifications of the Solahart Gateway Product (including exposure to excessive humidity, heat, cold, dust, liquids, magnetic or electromagnetic interference, or incorrect supply voltage or current); (g) damage, malfunction or failure resulting from alterations, accident, misuse, abuse, fire, liquid spillage, use on an incorrect voltage, power surges and dips, thunderstorm activity, acts of God, voltage supply problems, tampering, unauthorised repairs or other acts by any persons (including any repairs by persons other than Solahart authorised service personnel) or entry by any insect, vermin or foreign object in the Solahart Gateway Product; or (h) cases where the factory applied UID has been altered or removed from the Solahart Gateway Product.

Location and positioning

Where the Product is installed outside the boundaries of a metropolitan area (as defined by Solahart) or further than 25 km from a regional Solahart Dealer, the cost of transport, insurance and travelling costs to the nearest Solahart Dealer shall be the owner's responsibility.

Replacements

Solahart may use new, used, remanufactured or refurbished parts or products when repairing or replacing any Product under this Limited Warranty. Any exchanged or replaced parts or Products will become the property

of Solahart. Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired.

If the Product is repaired or replaced under this Warranty, the remainder of the applicable Warranty Period will apply to the repaired or replaced Product and the repaired or replaced Product or parts will not carry a new Solahart Warranty. The Warranty Periods set out above will not be extended in any way in the event of a replacement or repair of a Product, but this does not affect any rights you may have under the Australian Consumer Law in relation to the replaced or repaired Product (see the section below entitled “The Australian Consumer Law” for further details).

Limitation of this warranty

This Limited Warranty is provided voluntarily and free of charge and does not constitute an independent guarantee promise. Therefore, if any defect materially affects the functionality of any Product, the remedies under this Warranty are limited exclusively to the remedies set out above in the warranty cases specified herein.

Subject to any statutory provisions to the contrary, Solahart assumes no warranties, express or implied, written or oral, other than the warranties made herein and specifically disclaims all other warranties, merchantability or fitness for a particular purpose and Solahart excludes all liabilities for any special, incidental, indirect, consequential or punitive damages arising from or in connection with the use or loss of use of the Product to perform as warranted, regardless of the form of action and regardless of whether a party has been informed of or otherwise might have anticipated the possibility of such damages; including but not limited to damages for loss of power, loss in income or revenue, lost profits or savings nor expenses arising from third-party claims. This does not apply to the extent Solahart is liable under applicable mandatory laws.

If you require a call out and we find that the fault is not covered by Solahart's warranty, you are responsible for our standard call out charge. If you wish to have the relevant component repaired or replaced by Solahart that service will be at your cost.

Entitlement to claim under this warranty

To be entitled to make a claim under this warranty you need to:

1. Provide proof of purchase documentation and be the owner of the Product or have the consent of the owner to act on their behalf.
2. Contact your Solahart dealer without undue delay after detection of the defect (or in the case of GoodWe Battery and BYD Battery-Box System, within 1 month of appearance of the defect, or in the case of a SolahartV1 or SolahartC1 range module, within 30 days after discovering the defect) and, in any event, within the applicable Warranty Period.

You are not entitled to make a claim under this warranty if the relevant Product:

1. Does not have its original product labels, serial numbers and type plate or the labels or numbers are illegible; or
2. Is not installed in Australia.

Warranty claim procedure

If you wish to make a claim under this warranty, you need to:

1. Contact your Solahart dealer, provide proof of purchase (your invoice) and owner's details, address of the Product, a contact number and date of installation of the Product.
2. Solahart will arrange for the Product to be tested and assessed. Solahart will inform you whether this will occur on-site or whether the Product must be sent elsewhere for testing and assessment.
3. If Solahart determines in its sole discretion that you have a valid warranty claim, Solahart will organise for the repair or replacement of the Product or any component in accordance with this warranty.

Any expenses incurred in the making of a claim under this Warranty will be borne by you.

The Australian Consumer Law

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Exhibit A
GOODWE BATTERY CAPACITY RETENTION LEVELS

The GoodWe Battery Capacity Retention Warranty starts on the earlier of the GoodWe Battery installation date, or 6 months after the GoodWe Battery production date. Starting on that date, the GoodWe Battery will retain 70% of Usable Energy for 10 years, or for a Minimum Through Output Energy (as per the table below), whichever comes first.

Model Name	*Usable Energy	Minimum Through Output Energy (MWh)
LXU5.4L	4.8	12.42

*Usable Energy (KWh) needs to be measured by following the testing conditions and methods

Capacity measurement condition: Ambient temperature: 25~28 C

Charge / Discharge method:

1. Discharge the battery with constant current until the battery reaches end of discharge voltage or the battery self-protects automatically.
2. Lay aside the battery for 10 minutes.
3. Charge the battery with constant current and constant charge voltage until the battery self-protects automatically.
4. Lay aside the battery for 10 minutes.
5. Discharge the battery with constant current until reach end of discharge voltage or the battery self-protects automatically. Calculate discharged capacity. Monitor current timely. (If it's constant current.)
6. Calculate formula: Current Capacity = Discharge time × Constant current value.
7. Charge the battery with constant current and constant charge voltage until the battery self-protects automatically.

Exhibit B
BYD BATTERY-BOX SYSTEM RETENTION LEVELS

References in this Exhibit to the “Product” are to a BYD Battery-Box.

In respect of the **HVM series**, the Usable Energy and Minimum Throughput Energy for each Product Model are set out in the table below:

Product Type	Usable Energy(kWh)1 *	Minimum Through Output Energy (MWh)
HVM 8.3	8.28	25.62
HVM 11.0	11.04	34.15
HVM 13.8	13.8	42.69
HVM 16.6	16.56	51.23
HVM 19.3	19.32	59.77
HVM 22.1	22.08	68.31

* For the purposes of this Limited Warranty, the remaining Usable Energy is as measured and calculated using the following testing method and values, while the ambient temperature is between 25~28°C:

- Discharge the battery with constant current until the battery reaches end of discharge voltage ('**EODV**') or its self-protective voltage.
- Wait for 10 minutes
- Charge the battery with constant current and constant charge voltage to its full capacity.
- Wait for 10 minutes.
- Discharge the battery with constant current until it reaches EODV or self-protection voltage. Calculate discharged capacity. Record the current, voltage and time/
- The remaining Usable Energy is the integral of discharge time, current and voltage.

Test value list:

Product Type	End of discharge voltage(V)	Constant charge voltage(V)	Constant current(A)
HVM 8.3	120	180	10
HVM 11.0	160	240	10
HVM 13.8	200	300	10
HVM 16.6	240	360	10
HVM 19.3	280	420	10
HVM 22.1	320	480	10

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