



site preparation manual

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energy
renaissance



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introduction

Thank you for the purchase of your new battery energy storage system and welcome to Energy Renaissance.

This document is to help you prepare your site for the upcoming delivery of your battery and give best practices to ensure a smooth and safe installation.

Once your battery is safely in position, please refer to your chosen product's appropriate installation manual for technical guidance on how to complete the electrical installation for your Renaissance superRack™ or superRack™ outdoor.

Energy Renaissance offers a range of indoor and outdoor battery products designed for various applications. Both the indoor and outdoor range have different site requirements, this document is to ensure your site is prepared correctly and is ready for delivery.



safety

Every possible precaution should be taken to ensure the safety of personnel and the system.

- Only licenced electricians or skilled workers that are deemed competent by the installing entity can install and operate this product.
- A skilled worker is defined as a trained and qualified electrician or installer (deemed competent by the installing entity) who has all the following skills and experience:
 - Knowledge of the functional principles and operation of the whole energy storage system.
 - Knowledge of the dangers and risks associated with installing and using lithium-ion battery modules, electrical connectors, BMS and power conversion systems.
 - Knowledge of the installation of electrical wiring and on grid systems.
 - Knowledge of and adherence to this manual and all safety precautions, international standards, and best practices.
- Your battery has been designed and tested strictly according to international safety regulations.
- Installers and users are responsible for familiarising themselves with this manual. All descriptions in this manual, especially safety related items, must be complied with.
- Operators should have comprehensive understanding of the structure, working principle of the battery modules and the whole energy storage system.
- superStorage™ products and the individual components are extremely heavy. Ensure that all elements are lifted, transported, placed with care and lifting best practices are used.
- A mechanical lift is required to lift and position the superStorage™ product.
- Operators should be familiar with the relevant standards of the country/region where the project is located.

Installation must be according to at least the following standards:

- Building Code of Australia
- IEC 62619 Ed. 1.0
- AS/NZS 5139
- AS/NZS 3000
- AS/NZS 4509.1
- AS/NZS 4777.1/.2/.3
- AS1768
- AS/NZS1170.2

The installation also needs to comply with safety and electricity legislation in the relevant state or territory in Australia. Best Practice guides should be followed.

<https://www.cleanenergycouncil.org.au/industry/installers/compliance-toolkit/standards>

Installers must meet the relevant safety gear requirements of international standards, such as IEC 60364 or domestic legislation.















The safety instructions outlined in this document cannot cover all precautions that need to be followed.

It is important that operations are performed considering actual onsite conditions.

Energy Renaissance shall not be held liable for any damage caused by the breach of the safety instructions in this manual. **Failure to observe the precautions described can cause serious injury to persons or damage to property.**



Specific battery safety

	An extremely dangerous power hazard exists during battery energy system installation and connection. Take extreme caution during this process. Failure to do so may cause serious injury or death. Batteries are a constant power supply and should always be deemed to be a live source of energy.		The battery pack should be disposed of at an environmentally safe recycling facility.
	The battery pack should not be disposed of with household waste at the end of its working life.	 EXPLOSIONS	Do not subject the battery pack to strong impacts. Do not crush or puncture the battery pack. Do not dispose of the battery pack in a fire. Only use insulated tools when dealing with batteries.
	Read the manual before installing and operating the battery pack.	 RISKS OF FIRE	Do not expose the battery pack to temperatures in excess of 60°C. Do not place the battery pack near a heat source, such as heating systems. Do not expose the battery pack to direct sunlight. Do not allow the battery connectors to touch conductive objects such as wires or moisture or liquids. Do not short circuit battery packs. Ensure vermin, insects or other pests do not inhabit battery rooms or battery enclosures
	Keep the battery module away from open flame or ignition sources.	 RISKS OF ARCING	Do not allow battery connectors (pack or rack) to touch conductive objects such as wires or moisture or liquids.
	Wear appropriate personal protective equipment when dealing with the battery pack. Safety boots are required when lifting packs. Insulating gloves, insulating mat, safety goggles and long sleeved/legged non-flammable clothing for electrical connection.	 RISKS OF ELECTRIC SHOCK	Do not disassemble the battery pack/rack. Do not touch the battery pack/rack with wet hands. Do not expose the battery pack/rack to moisture or liquids. Keep the battery pack/rack away from children and animals.
	Keep the battery pack away from children.		
	Under fault conditions, the battery pack may leak corrosive electrolyte.		
	Under fault conditions, the battery pack may explode.		
	The battery packs and superStorage™ products are heavy enough to cause severe injury. Safety boots are required for installation, connection and are required at all times in the work area.		



DANGER! Emergency situations

Risks of damage to the battery pack/rack

- X **Do not** tilt battery rack/battery enclosure
- X **Do not** allow the battery pack/rack to come into contact with liquids.
- X **Do not** subject the battery pack/rack to high pressures.
- X **Do not** place any objects on top of the battery pack/rack.
- X **Do not** expose battery pack/rack to high temperatures (the product is warranted for use at 25 ± 5 °C), high humidity or dust
- X **Do not** subject the battery pack/rack to short circuiting

Leakages	<p>CAUTION!</p> <p>Damaged batteries may leak electrolyte or produce flammable gas.</p> <p>If you suspect a gas leak, take these actions:</p> <ul style="list-style-type: none"> • Immediately quarantine the location and do not allow any personnel near the potentially damaged battery. • Contact emergency services / call fire brigade and follow your site procedures. • Contact your provider for further advice and information. <p>In case of a fire, make sure that an appropriately rated fire extinguisher is nearby.</p> <ul style="list-style-type: none"> • The battery pack/rack may catch fire when heated above 150 °C. <p>If a fire breaks out near the battery pack/rack installation:</p> <ul style="list-style-type: none"> • Extinguish the fire potential before the battery pack/rack catches fire or if smoke is present. <p>If the battery pack/rack has caught fire:</p> <ul style="list-style-type: none"> • Do not try to extinguish the fire. • Evacuate people immediately and shut off any connected power systems. • Contact emergency services / call fire brigade and follow your site procedures. <p>If the battery pack/rack leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte is corrosive and contact may cause skin irritation and chemical burns. If anyone is exposed to the leaked substance, take these actions:</p> <p>Inhalation: Evacuate the contaminated area and seek medical attention immediately.</p> <p>Eye contact: Rinse eyes with flowing water for 15 minutes and seek medical attention immediately.</p> <p>Skin contact: Wash the affected area thoroughly with soap and water for 15 minutes and seek medical attention immediately.</p> <p>Ingestion: Induce vomiting and seek medical attention immediately.</p>
Wet batteries	If the battery pack/rack is wet or submerged in water, do not try to access it. Contact your provider for technical assistance.
Damaged batteries	Damaged batteries are dangerous and must be handled with extreme caution. They are not fit for use and may pose a danger to people or property. If the battery pack seems to be damaged, contact your provider for advice. Do not handle.



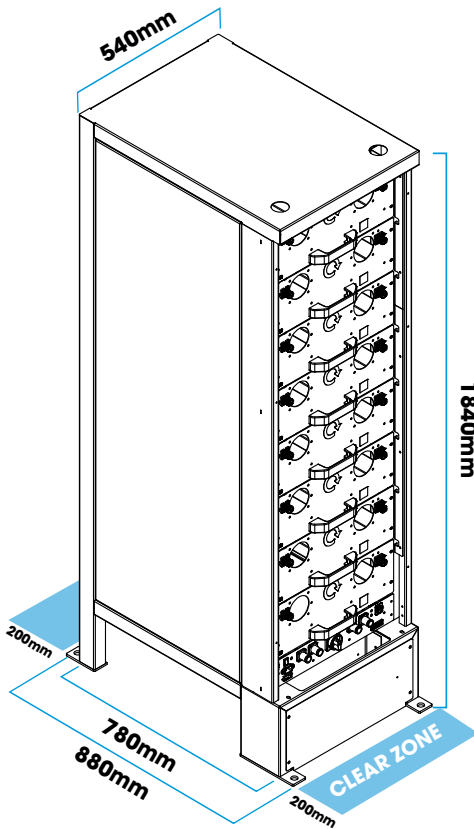
dimensions & clear zones

superRack™

Mandatory clear zone of 200mm is required for adequate ventilation at front and rear of superRack™.

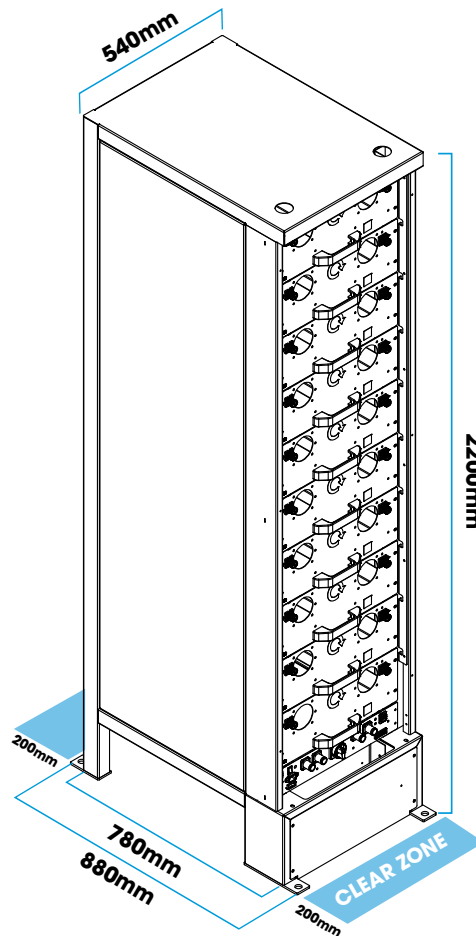
Recommended clear zones for accessibility are 600mm at the rear and 1,500mm at the front of the superRack™.

superRack™ 8 pack



KG up to 600kg

superRack™ 10 pack



KG up to 735kg

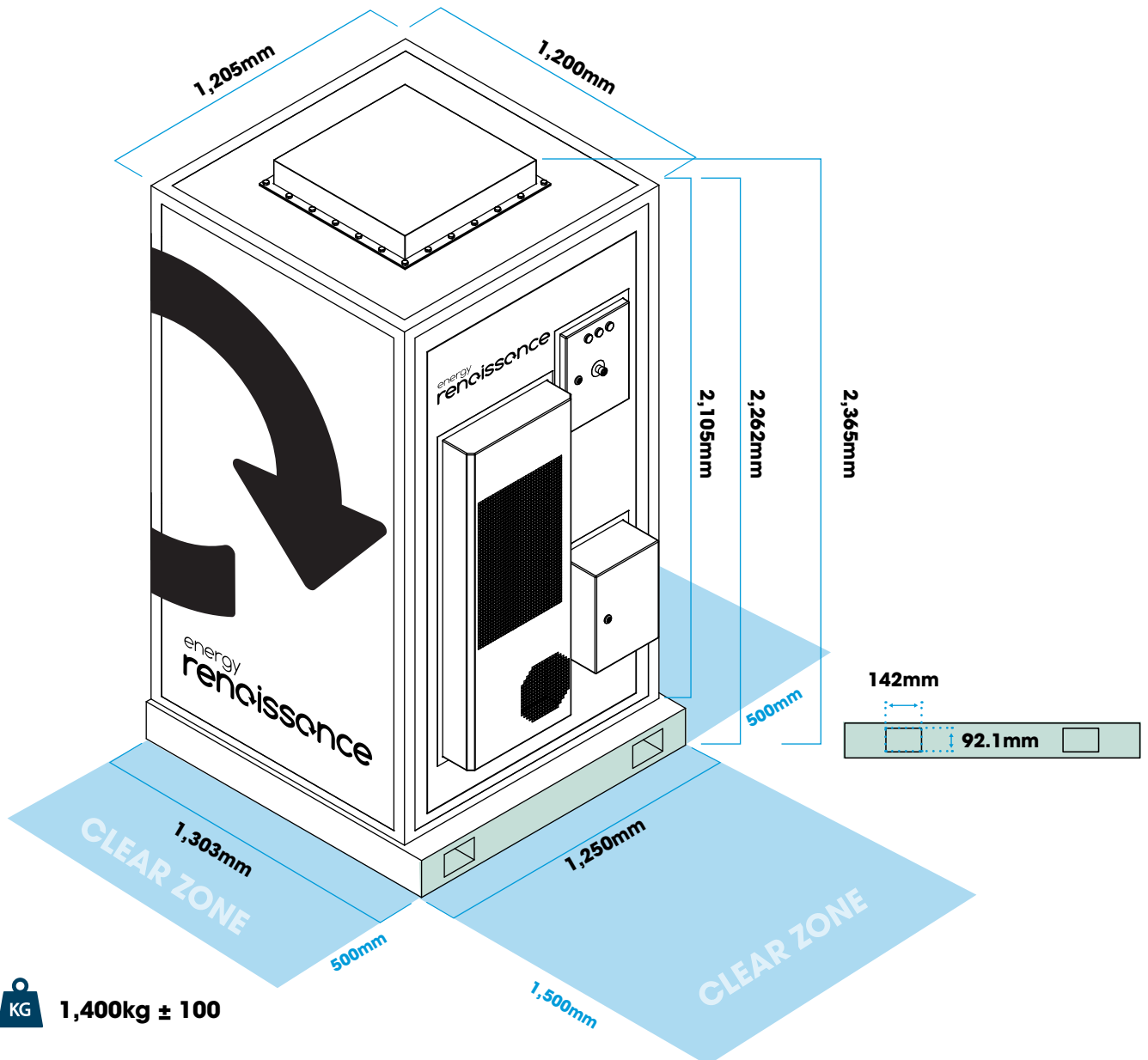


dimensions & clear zones

superRack™ outdoor

Recommended clear zones for accessibility are 500mm at either side and 1,500mm at the front of the superRack™ outdoor.

Recommended clear zone to allow for the pressure safety vent to open is a minimum of 740mm from the top of the superRack™ outdoor.





logistics, unloading & lifting



WARNING! The superRack™ and superRack™ outdoor are heavy.

Batteries are required to be unloaded carefully with mechanical lifting equipment on a level surface so not to allow the rack or pallet to tilt. Forklift tines must be fully engaged to prevent battery tipping.



All Energy Renaissance battery products must be transported via Dangerous Goods certified logistic providers

WARNING!

Your product comes with shock and tilt sensors. If either sensors have been activated, contact your provider prior to accepting the delivery.



shock sensor



tilt sensor



Avoid tilting	If tilting occurs there is a high risk of the rack falling and crush danger. Forklift tines must be fully engaged to prevent battery tipping.
DANGER fallen rack	If the rack/enclosure has fallen it is immediately deemed unsafe, warranty voided, and all safety risks should be observed.
Avoid violent vibration	Violent vibration, impact or extrusion needs to be avoided.
Use correct equipment to move the superRack™ or superRack™ outdoor	Indoor superRack™ arrives on a pallet base and can be moved with an appropriately rated narrow base pallet jack. The superRack™ outdoor is built on a structural base that can only be moved with an appropriately rated forklift.



site considerations

superRack™

IP rating	superRack™ indoor configurations are rated to IP 20. This rating requires the superRack™ to be kept in a location that protects the batteries from all inclement weather conditions, including during transportation, pre and post installation.
Installation position considerations	<ul style="list-style-type: none">• Consider available floor space, including aisles for rack installation, maintenance, and possible rack replacement.• Racks should be placed with minimum 200mm ventilation space behind where it is installed. Ventilation space of minimum 200mm should also be given in front of the rack.• The rack position and wiring need to be taken into consideration when installing, for maintenance, and easy access. Recommended accessibility clearance is 600mm at the rear and 1,500mm at the front of the rack.• The battery rack needs to be placed within a 3m distance of the inverter and not exceed inverter manufacturers specifications.• Maintain control over vermin, insects and other pests in the battery location to avoid damage to battery racks.
Safety warning signage and escape requirements	<ul style="list-style-type: none">• Warning signs and safety signs need to be set up in installation area.• Ensure there is a clear path for staff or persons to leave the battery location quickly in case of an emergency.• Do not place combustible or explosive materials around battery packs.• Do not obstruct the escapeway route or occupy the escape way in any form.• Ensure the equipment can be well grounded.
Package inspection	<ul style="list-style-type: none">• It is necessary to check all equipment for damage before installation.• Check packaging for any visible damage. Look for liquid leakage or residue and be aware of peculiar smells, rattling sounds or loose parts. If there is any sign of damage do not install and contact your provider.• Check the shock and tilt sensors are in tact, if either has been activated contact your provider.• Check the delivery check list to ensure all accessories delivered are complete according to the packaging list.• If any damage is found, DO NOT INSTALL. Contact your provider.



Installation environment	<ul style="list-style-type: none">• Ensure temperature and humidity are within acceptable range before installing. $25 \pm 5^{\circ}\text{C}$ and less than 95% relative humidity in a non-condensing atmosphere.• When installed in an enclosed space, there needs to be good ventilation. No excessive humidity, or high temperature source, no corrosive gas or explosive materials. It must meet fire protection requirements. See AS/NZS 5139 installation standards and Building Code of Australia.• Avoid direct sunlight or rain. Altitude must be $<2,000\text{m}$.• superRack™ installations should take place on a flat concrete base or other non-flammable surface. It should have enough load bearing capacity to hold the superRack™ configuration, or multiples of.• The working environment of the battery rack/pack should be free of insulating gas and conductive dust or other hazardous elements.• The four holes located on the feet of the superRack™ are used to anchor the system to the floor. Usually fixed with M16 expansion bolts or similar.
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site considerations

superRack™ outdoor

IP rating	The superRack™ outdoor is rated to IP 56. This rating allows for installation outside without the requirement for additional protection from wind, rain or sunshine.
Installation position considerations	<ul style="list-style-type: none">• The enclosure position and wiring need to be taken into consideration when installing, for maintenance, and easy access. Recommended accessibility clearance is 500mm at either side and 1,500mm at the front of the enclosure.• The battery enclosure needs to be placed within a 3m distance of the inverter and not exceed inverter manufacturers specifications.• Maintain control over vermin, insects and other pests in the battery location to avoid damage to battery enclosure.• Ensure the ground is level, has the capability to hold the full weight rating of the product without the possibility of ground movement, land slide or erosion. The location should be free draining and not allow water pooling underneath the battery enclosure base. The ground should be free of any corrosive materials.• Due to the position of the lifting points the outdoor products can only be lifted from the front or the rear of the battery enclosure, make allowances for side shifting if positioning batteries into tight spaces.
Safety warning signage and escape requirements	<ul style="list-style-type: none">• Warning signs and safety signs need to be set up in installation area.• Ensure there is a clear path for staff or persons to leave the battery location quickly in case of an emergency.• Do not place combustible or explosive materials around battery packs.• Do not obstruct the escapeway route or occupy the escape way in any form.• Ensure the equipment can be well grounded.
Enclosure inspection	<ul style="list-style-type: none">• Check the exterior of the enclosure for any visible damage. Look for liquid leakage or residue and be aware of peculiar smells, rattling sounds or loose parts. If there is any sign of damage do not install and contact your provider.• Check the shock and tilt sensors are in tact, if either has been activated contact your provider.• DO NOT open the enclosure door unless instructed to do so by Energy Renaissance. Opening the door without authorisation may affect your warranty.• Check the delivery check list to ensure all accessories delivered are complete according to the packaging list.• If any damage is found, DO NOT INSTALL. Contact your provider.
Installation environment	<ul style="list-style-type: none">• Altitude must be <2,000m.• superRack™ outdoor installations should take place on a flat concrete base or other non-flammable surface. It should have enough load bearing capacity to hold the superRack™ outdoor configuration, or multiples of.• The working environment of the superRack™ outdoor should be free of insulating gas and conductive dust or other hazardous elements.

site preparation checklist



Battery Room

	Sufficient space to host all battery components, including defined clearance
	Clean and tidy room free of dust and dirt
	Protected from insects and animals
	Free of mould and damp
	Less than 95% relative humidity in a non-condensing atmosphere
	Security measures in place to prevent unauthorised room access
	Controls in place to ensure temperature does not exceed $25 \pm 5^{\circ}\text{C}$
	Installation site must have and maintain reliable internet connection (98% uptime and 10 Mbps minimum speed). Unreliable internet connection will void product warranty unless rectified within seven (7) days and provision of evidence of battery operation within required parameters.

Installers

	All equipment required to move and install batteries in place
	Have read and understood installation and user manual
	Have undertaken health and safety training
	Have access to personal protective equipment
	Complying with all relevant health and safety regulations
	Site SLD including ratings and showing battery connections

Access

	Accessibility for delivery trucks
	Suitable loading and unloading areas
	Availability of appropriate mechanical moving equipment for manoeuvring and positioning of batteries without tilting. Forklift tines must be fully engaged to prevent tipping
	Adequate space for manoeuvring and positioning batteries

responsibility chart



Responsibility					Details
	Pre Delivery	Delivery	Commissioning	Service and Support	
Project and Site Management including sub contractor management if applicable	●	●	●	●	
End customer relationship management and support	●	●	●	●	
Battery technology advice, service and support	●	●	●	●	
System Integration	●	●	●	●	ER will provide advice on system components we have tested integration with including but not limited to inverters, meters, UPS and generators.
System design including single line diagram (SLD), network communications diagram and site plan	●				Relevant details to be provided in a pre-delivery questionnaire
Procurement of system requirements and site preparation	●				
Battery system production including battery pre-commissioning, quality assurance and testing	●				
Site communications	●	●	●	●	Reliable Internet access (98% uptime and 10 Mbps minimum speed) for remote commissioning and ongoing product performance management
Battery system delivery		●			Product pricing is FCA Tomago, NSW. Logistics can be organised by ER for an additional fee on request. Note: DG certified truck & driver required.
Balance of system delivery		●			
Site works and system installation including battery system			●		
superEMS™/superModus™ remote commissioning support			●	●	ER to provide remote support to site lead to finalise ER controller commissioning
Site Commissioning and handover			●		
System warranty and performance support				●	
Battery system warranty support and performance support				●	
superEMS™/superModus™ ongoing monitoring and electronic notifications				●	



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