NETSYS NHG-200C 2Gbps G.hn EoC Endpoint User Manual

Battery handling guide

- Use the battery pack only as directed
- Do not use the battery pack f it is defective, appears cracked, broken or otherwise: damaged, or fails to operate.
- Do not attempt to open, disassemble, repair, tamper with, or modify the battery pack. The battery pack s not user serviceable.
- To protect the battery pack and its components from damage when transporting, handle with care.
- Do not impact, pull, drag or step on the battery pack. Do not subject it to any strong; force.
- Do not insert foreign objects into any part of the battery pack.
- Do not use cleaning solvents to clean the battery pack.
- Do notinstalled the battery in a closed place where the ventilation is not available.

Response to emergency situations

The RESU battery pack comprises multiple batteries that are designed to prevent haz- ards resulting from failures. However, LG Energy Solution cannot guarantee their absolute safety.
Leaking batteries
If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte s corrosive and contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, do these actions;
Inhalation: Evacuate the contaminated area, and seek medical attention immediately.
Eye contact: Rinse eyes with flowing water for 15 minutes, and seck medical attention immediately.
Skin contact. Wash the affected area thoroughly with soap and water, and seck med- ical attention immediately
Ingestion: Induce vomiting, and seck medical attention immediately.
Fire

In case of a fire, make sure that an ABC or carbon dioxide extinguisher is nearby.
WARNING
‘The battery pack may catch fire when heated above 150°C.
If fire breaks out where the battery pack is installed, do these actions;

1. Extinguish the fire before the battery pack catches fire.
2. If the battery pack has caught fre do not try to extinguish the fire. Evacuate peo- ple immediately.

WARNING
If the battery catches fire, it will produce noxious and poisonous gases. Do not approach.
Wet batteries
If the battery pack is wet or submerged in water, do not try to access it. Contact LG Energy Solution or your

distributor 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, pack it i its original container, and then return it to LG Energy Solution or your distributor:

 **CAUTION**

Damaged batteries may leak electrolyte or produce flammable gas. If you suspect such damage, immediately contact LG Energy Solution for advice and information.

Qualified installers

This manual and the tasks and procedures described herein are intended for use by skilled workers only. A skilled worker is defined as a trained and qualified electrician or installer who has all of the following skills and experience:

- Knowledge of the functional principles and operation of on-grid systems.
- Knowledge of the dangers and risks associated with installing and using electrical devices and acceptable mitigation methods.
- Knowledge of the installation of electrical devices
- Knowledge of and adherence to this manual and all safety precautions and best practices.

Contact information

Use the contacts below for technical assistance.
These phone numbers are available only during business hours on weekdays.

	Telephone	Email
Europe	+49 6196 5719 660	techcentereu@lgensol.com
USA	+1 888 375 8044	CSNorthAmericaESS@lgensol.com
Australia	+61 1300 178 064	essserviceau@lgensol.com
Korea and other regions		essservice@lgensol.com

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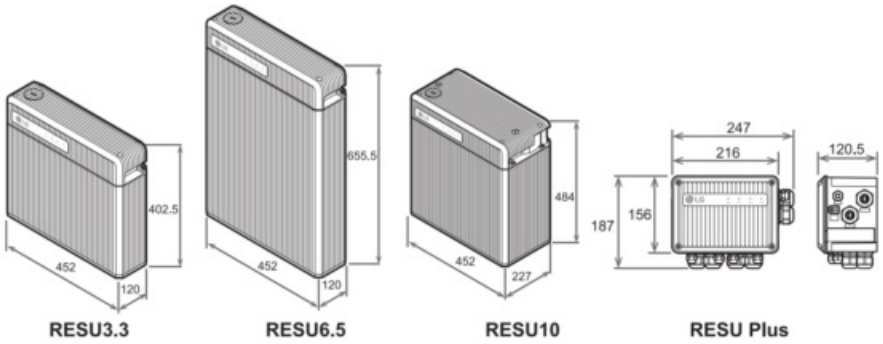
Product Introduction

Technical data

Dimensions and weight

	RESU3.3	RESU6.5	RESU10	RESU Plus
Length	452 mm (17.80 in)	452 mm (17.80 in)	452 mm (17.80 in)	216 mm (8.50 in)
Width	120 mm (4.72 in)	120 mm (4.72 in)	227 mm (8.94 in)	120.5 mm (4.74 i
Height	402.5 mm (15.85 in)	655.5 mm (25.81 in)	484 mm (19.06 in)	156 mm (6.14 in)
Weight[1]	31 kg (68.31b)	52 kg (114.6 lb)	75 kg (165.31b)	2 kg (4.41b)

A battery pack's weight varies slight depending on s battery el weight



Performance

	RESU3.3	RESU6.5	RESU10
Nominal voltage	51.8 V	51.8 V	51.8 V
Operating voltage	42 to 58.8 V	42 to 58.8 V	42 to 58.8 V
Nominal capacity	63 A•h	126 A•h	189 A•h
Nominal energy')	3.3 kWh	6.5 kWh	9.8 kWh
Standard power	1.1 kW	2.2 kW	3.3 kW
Maximum power	3 kW	4.2 kW	5 kW
Peak power for 3 seconds	3.3 kW	4.6 kW	7 kW
Peak current for 3 seconds	78.6 A	109.5 A	166.7 A
Maximum current	71.4 A at 42 V	100 A at 42 V	119 A at 42 V
Charge current	18.9 A	37.8 A	56.7 A
Discharge current	18.9 A	37.8 A	56.7 A

Actual usable energy at the AC output may vary by condition, such as inverter efficiency and temperature
If two battery packs are used, the nominal capacity and energy are equal to the sums of the two, but the maximum and peak power are equal to those of RESUTO.

Faradic charge efficiency (25°C/77°F)	99%
Battery round-trip efficiency (C/3, 25°C/77°F)	95%
Expected lifetime at 25°C/77°F	More than 10 years
Communication interface Cooling	CAN 2.0BNatural convection

Product Introduction

Charging cable requirements

Conductor cross-sectional area	33 to 50 mm^2
Outer diameter	14 to 21 mm
Lug hole size	M8
Lug width	21 mm
Maximum cable length	5 m per cable

Network cable requirements

Category	Cat se
Connector	BPSC without any kind of boots

Environmental requirements

Available operating temperature	— 10 to 50 °C (14 to 122 °F)
Optimal operating temperature	15 to 30 °C (59 to 86 °F)
Storage temperature	— 30 to 60 °C (-22 to 140 °F)
Humidity	5 to 95% (non-condensing)
Altitude	Below 2000 m (6562 ft)

Short Circuit Current / Duration

	RESUGS	RESUT0	RESU plus
Shor Creut et	2200A	25A	275A
Duration	6ms	5ms	15ms

Arc Flash Protection Calculations

In order to protect personnel from the possibility of being injured by an arc lash hazard, Are flash calculation of the battery system s estimated with the Incident Energy Calculations refer to Annex D of NFPA TOE.,

	RESU 6.5	RESU 10	RESU plus
Battery System Voltage	58.8V	58.8V	58.8V
Battery System Internal Resistance	0.025102	0.020611	0.021611
Bolted Fault Current	2.28kA	2.853kA	2.72kA
Arcing Current	1.14kA	1.4265kA	1.36kA
Clearing Time	6ms,	4ms	5ms
Arc Flash Incident Energy	0.0035 Cal/tm^2	0.0015 Cal/cm’	0.0018 Cal/cm^2
Working Distance	450mm(18inch)	450mm(18inch)	450mm(18inch)

Battery system installers must wear PPE(Personal Proactive Equipment) according to NFPA 70 Article 130, referring to the calculation results above.

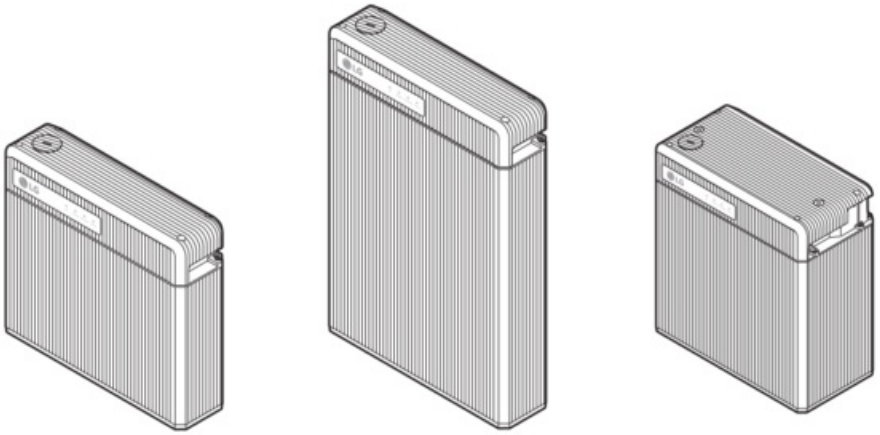
 **WARNNG**

- When install the battery system, the worker shall wear arc-rated clothing in every occasions and places to protect him/her from any possible exposure to an electric arc flash.
- The arc-rated clothing that the worker is wearing must assure the worker’s movement and visibility while covering all ignitable clothing.
- The worker shall wear the non-conductive safety helmet every occasions and places to protect him/ her from any danger of head injury from electric shock or burns due to the contact with energized electrical conductors or circuit parts resulting from electrical explosion.
- The worker shall wear non-conductive protective equipment for the face, neck, and chin in every occasions and places to protect him/her from any danger of injury from exposure to electric arcs or flashes resulting from electrical explosion.
- The worker shall wear non-conductive protective equipment for the eyes in every occasions and places to protect him/her from any danger of injury from electric arcs, flashes resulting from electrical explosion.
- The worker shall wear hearing protection within the arc flash boundary.
- The worker shall wear Heavy-duty leather gloves or arc-rated gloves, satisfying the following regulation level, for are flash protection. In the case of wearing the rubber gloves for the shock protection, he/she shall wear additional leather protectors above the gloves.
- The worker shall wear Heavy-duty leather footwear or dielectric footwear or both to provide some arc flash protection.
- The worker shall inspect Arc-rated apparel before every use.
- Work clothing or arc flash suits that are contaminated or damaged to the extent, impairing the protective qualities, shall not be used.
- Protective items that become contaminated with grease, oil, or flammable liquids or combustible materials shall not be used.
- The garment manufacturer’s instructions for care and maintenance of arc-rated apparel shall be followed.
- Arc-rated apparel shall be stored in a manner that prevents physical damage; damage from moisture, dust, or other deteriorating agents or contamination from flammable or combustible materials.

Features

The RESU® battery pack has the following features:
Energy storage unit: This battery pack is designed for domestic photovoltaic system compatibility.
Battery management system (BMS): The battery pack's built-in BMS monitors its operation and prevents the battery from operating outside design limitations.
See 8. Troubleshooting.
Easy firmware update: The BMS firmware can be updated to the latest version.
See 9. Firmware Update.
Expandability: The battery capacity can be increased by adding another battery pack.
See 2.5 RESU Plus.
Maintenance
RESU 3.3/6.5/10 does not require maintenance during normal operation if properly installed per the installation manual. In the event of fault, contact the regional service center.

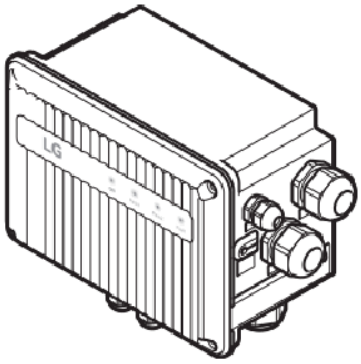
RESU lineup
There are three RESU battery pack models.



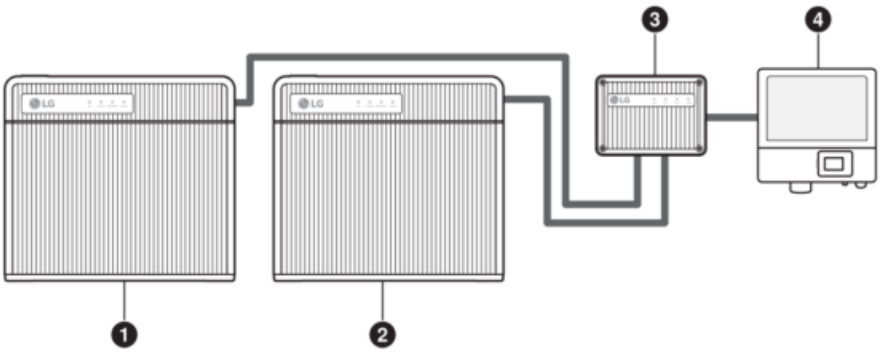
For details about these models, See 2.1 Technical data.
RESU Plus
The RESU battery pack can be used in combination of up to 2 units.

- RESU3.3+RESU3.3
- RESU3.3+ RESU6.5
- RESU3.3+ RESU10
- RESU6.5+ RESU6.5
- RESU6.5+ RESU10
- RESU6.5+ RESU12
- RESU10+ RESU10
- RESU10+ RESU12
- RESU12+ RESU12
- RESU13 + RESU13

  (only RESU13s can be used in combination)



A unit of RESU Plus, which is sold separately, is required to install two RESU battery packs. Two battery packs are connected to an inverter via a RESU Plus.



1. 1st battery pack
2. 2nd battery pack
3. RESU Plus
4. Inverter

Documents / Resources

	NETSYS NHG-200C 2Gbps G.hn EoC Endpoint [pdf] User Manual NHG-200C, NHG-200C 2Gbps G.hn EoC Endpoint, NHG-200C, 2Gbps G.hn EoC Endpoint, EoC Endpoint, Endpoint

References

- User Manual