



# User Manual

## Battery Module NS48112-S & Control Unit HV900112

V1.0



# 1. Safety Precautions



## Warning - electrical hazards

Please read through this manual carefully before operation

- In unlikely event of smoke or fire, turn off main switch immediately and contact your installer for further instructions.
- Battery should be installed indoor or outdoor and kept away from water, high temperature, mechanical force and flames.
- Do not disassemble, move or modify any parts of the battery without authorization and instruction from NEOSUN Energy.
- Do not install the battery in any environment of temperature below -10°C or over 50°C, and humidity over 80%.
- Do not touch the system with wet hands.
- Do not put any heavy objects on the top of the battery.

# 2. Introduction

## 2.1 Features

The NS48112-S battery pack and HV900112 control unit has the following features:

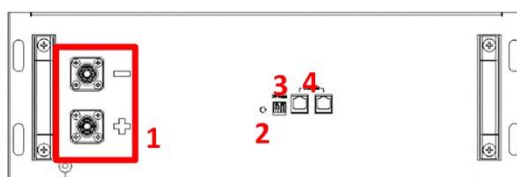
**Commercial industrial system:** This battery pack and high-voltage control box are designed for high voltage commercial and industrial energy storage systems.

**Local management unit (LMU):** The battery pack built-in LMU monitors the temperature and voltage of each cell.

**Battery management unit (BMU):** The high-voltage control box built-in BMU collects the data from LUM, monitors and controls the whole cluster of batteries.

**Expandability:** For expansion 5~15 battery packs can be connected in series. The TOP BMU box will be needed if there are more than one cluster.

## 2.2 Specifications



Specification
















- 1: Wiring terminal
- 2: Status LED
- 3: DIP Switch
- 4: Communication Ports

## 2.3 LED Display

In normal condition LED displays three status:

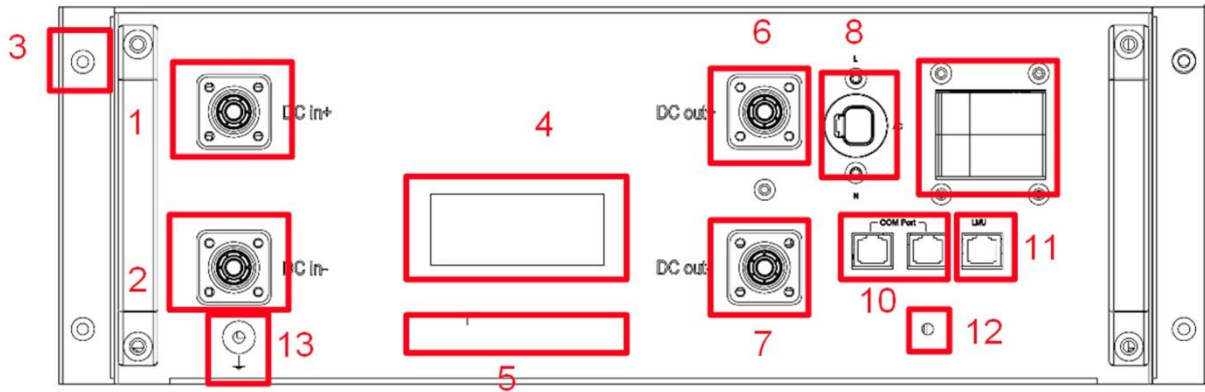
Status	Normal	Warning	Fault
LED Display	Green light blinks for 1sec	Red light blinks for 1sec	Red and green light blink for 1sec

## 2.4 DIP Switch Definition

Serial Number	Dip Switch	Serial Number	Dip Switch	Serial Number	Dip Switch
1		6		11	
2		7		12	
3		8		13	
4		9		14	
5		10		15	

### 3. HV900112 Control Unit

#### 3.1 Specifications:



#### 3.2 Description:

No.	Description	No.	Description
1	DCin+	8	AC input (auxiliary power)
2	DCin-	9	AC Air switch (auxiliary power)
3	Earthing point x 4	10	BMU COM port (CAN) x 2
4	Moulded case circuit breaker	11	LMU COM port (CAN)
5	Information label	12	LED light
6	DCout+	13	Earthing point (reserved)
7	DCout-		

#### 3.3 LED Display String (only one cluster)

In normal condition LED displays four statuses:

Status	Normal	Warning	Fault	Relay forced to close
LED Display	Green light blinks for 1sec	Yellow light blinks for 1sec	Red light blinks for 1sec	Yellow and red light blink for 1sec

#### 3.4 LED Display String (more than one clusters)

In normal condition LED displays four statuses:

Status	Normal	MCCB switches off	Fault	Relay forced to close
LED Display	Green light blinks for 1sec	Yellow light blinks for 1sec	Red light blinks for 1sec	Yellow and red light blink for 1sec

## 4. Power Cables Connection

If there are only one or two clusters, you don't need the junction box. The battery DC positive and negative port of HV900112 can be directly connected to the BAT+ and BAT- of PCS as Figure 3 shows.

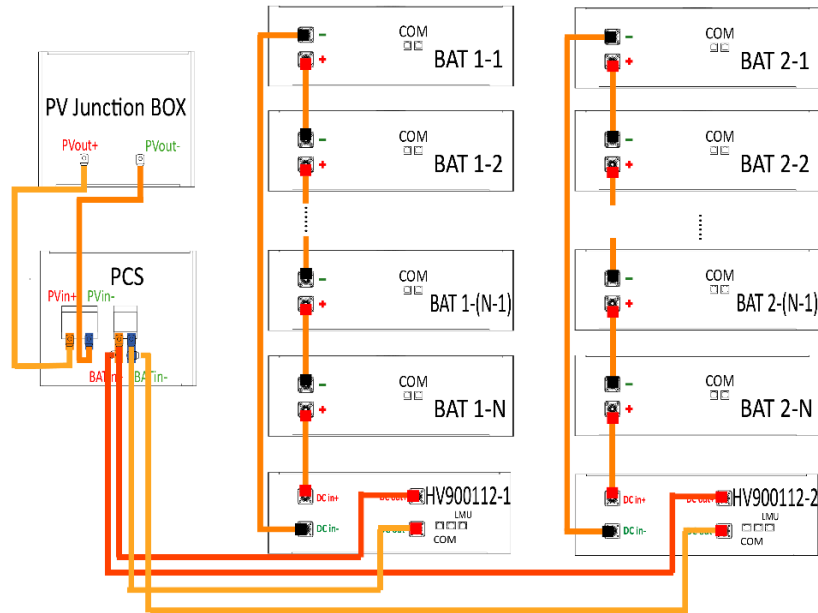


Figure 3: Battery side-power cables connection without junction box

If you use the junction box, place the relevant power cables to junction box at the first, as shown in Figure 4. Then put the junction box in to the rack the same way as HV900112.

**NOTE: The cover of the junction box should be taken off for wiring. The cables should be connected vertically with the copper bars in the junction box.**

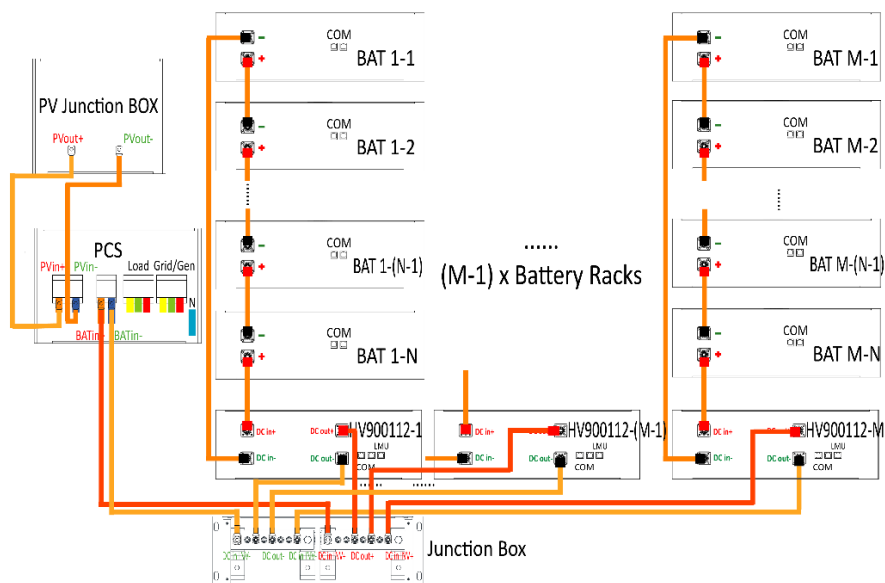


Figure 4: Battery side-power cables connection with junction box

## 5. Emergency Situations

NEOSUN Energy cannot guarantee NS48112-S battery absolute safety.

### Fire

In case of fires, make sure that the following equipment is available near the system.

- SCBA (self-contained breathing apparatus) and protective gear in compliance with the Directive on Personal Protective Equipment 89/686/EEC.
- Novec 1230, FM-200, or dioxide extinguisher.

### NOTE

**ABC extinguishers are not effective when the battery pack is on fire.**

Batteries may explode when heated above 150°C. If possible, move the battery pack to a safe area before it catches fire.

### Leaking Batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. If one is exposed to the leaked substance, immediately perform the actions described below.

- **Inhalation:** Evacuate the contaminated area, and seek medical attention.
- **Contact with eyes:** Rinse eyes with flowing water for 5 minutes, and seek medical attention.
- **Contact with skin:** Wash the affected area thoroughly with soap and water, and seek medical attention.
- **Ingestion:** Induce vomiting, and seek medical attention.

### Wet Batteries

If the battery pack is wet or submerged in water, do not let people access it, and then contact NEOSUN Energy or an authorized dealer for technical support.

### Damaged Battery

Damaged batteries are dangerous and must be handled with the utmost care.

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 in its original container, and then return it to NEOSUN Energy or an authorized dealer.

### NOTE:

**Damaged batteries may leak electrolyte or produce flammable gas. If such a damage occurs, immediately contact NEOSUN Energy.**

## 6. Warranty

### 5.1 Warranty

Products that are operated strictly in accordance with the user manual and the NEOSUN Installation Manual are covered by the warranty. Any violation of this manual may void the warranty.

### 5.2 Limitation of Liability

Any product damage or property loss caused by the following conditions NEOSUN does not assume any direct or indirect liability.

- Product modified, design changed or parts replaced without NEOSUN Energy authorization;
- Changes, or attempted repairs and erasing of series number or seals by non NEOSUN Energy technician;
- System design and installation are not in compliance with standards and regulations;
- The Product has been improperly stored in dealer's or end user's premises;
- Transport damage (including painting scratch caused by movement inside packaging during shipping). A claim should be made directly to shipping or insurance company as soon as the container/packaging is unloaded and such damage is identified;
- Failure to follow any/all of the user manual, the installation guide and the maintenance regulations;
- Improper use or misuse of the device;
- Insufficient ventilation of the device;
- The maintenance procedures relating to the product have not been followed to an acceptable standard;
- Force majeure (violent or stormy weather, lightning, overvoltage, fire etc.).
- Damages caused by any external factors.

## **NEOSUN International Ltd.**

### **ASIA & PACIFIC**

**Headquarter and R&D Center**  
15/F, Easey Commercial Building,  
253-261 Hennessy Rd, Wan Chai,  
Hong Kong

+852 5808 7160  
info@neosun.com

### **MIDDLE EAST, RUSSIA & CIS**

**Sales Department**  
4/F, Leninskaya Sloboda 19, BC  
Omega Plaza, 115280, Moscow,  
Russia

+7 (495) 118-20-70  
sales@neosun.com