

# Battery Module and Control Unit M48112-S & HV900112

## User Manual

EN - V 03



**Alpha·ESS**  
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## 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 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 AlphaESS.
- ★ Do not install the battery in any environment of temperature below  $-10^{\circ}\text{C}$  or over  $50^{\circ}\text{C}$ , 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

### 2.1.1 Features

The M48112-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.

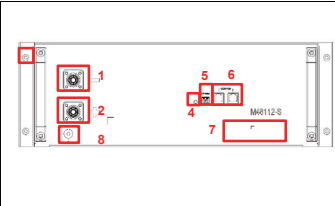
**Local management unit (LMU):** The battery pack built-in LMU monitors the temperature and voltage of each cell.

**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 clusters.

## 2.2 M48112-S

### 2.2.1 Specifications
















	No.	Description
	1	Battery negative pole
	2	Battery positive pole
	3	Earthing point x 4
	4	LED light
	5	Dip switch
	6	COM port (CAN) x 2
	7	Information label
8	Earthing point (reserved)	

### 2.2.2 LED Display

In normal condition LED displays three status:

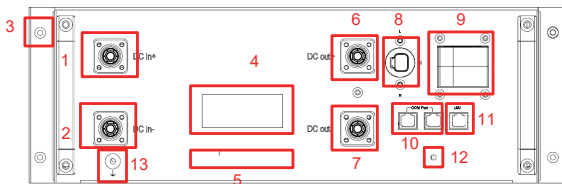
Status	Normal	Warning	Fault
LED Display	Green light blinks for 1sec	Red light blinks for 1sec	Red and green light blink for 1sec

### 2.2.3 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	

## 2.3 HV900112

### 2.3.1 Specifications



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

### 2.3.2 LED Display

#### String (only one cluster)

In normal condition LED displays four status:

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

#### Central (more than one clusters)

In normal condition LED displays four status:

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

### 3. Emergency Situations

AlphaESS cannot guarantee M48112-S 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 running 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 AlphaESS 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 AlphaESS or an authorized dealer.

**Note: Damaged batteries may leak electrolyte or produce flammable gas. If such a damage occurs, immediately contact AlphaESS.**

## **4. Warranty**

### **4.1 Warranty**

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

### **4.2 Limitation of Liability**

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

- Product modified, design changed or parts replaced without AlphaESS authorization;
- Changes, or attempted repairs and erasing of series number or seals by non AlphaESS technician;
- System design and installation are not in compliance with standards and regulations;
- Failure to comply with the local safety regulations (VDE for DE, SAA for AU);
- 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.





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