MARSRIVA

USER MANUAL

Rack Mounted LiFePO4 Battery

MR-LFP48-100-LRC

www.marsriva.com

CONTENTS

1 OVERVIEW

1.1 About this manual

Appreciate for choosing household energy storage system developed and produced by MARSRIVA. We sincerely believe that our products can satisfy your requirements as well as looking forward to your feedback on the performance of the product during use, so that we can further improve the quality of the product.

- This User Manual is applicable to the installation and use of the product of low voltage series rack mounted type with communication.
- Please read and understand all the contents of this manual carefully before installation and operation of the product. Any loss caused by ignoring the contents of this Manual may void the warranty of the product.
- The drawings provided in this manual are for explanation of the relevant concepts of the product, including product information, installation guide, instructions for use, safety information, frequently asked questions and maintenance etc.
- This manual and other related documents are an integral part of the product and need to be properly kept for the on-site installation personnel and relevant technical personnel to look up further.
- The content of this Manual will be updated and amended continuously. Users will refer to the physical products purchased. For more information, please obtain the latest user manual through sales channels.
- This Manual contains the product information, installation guide, instructions for use, safety information, frequently asked questions and maintenance, etc.of the product.

1.2 Safety

- **Safety Notice**

The installation, operation and maintenance of the battery system must be carried out by trained and qualified professionals. Before installation and use , please read this product manual carefully, otherwise it may cause personal injury or product damage. The precautions mentioned in this manual belong to the precautions under normal circumstances. If you find that there is a special use environment or use condition, please contact the technical staff of MARSRIVA to solve it.

- **Common symbols and descriptions**

Safety Notice	Recycle	Do not throw into fire	Do not throw away

Precautions

1. Batteries are half charged before shipment. Don't use the battery if it's hot, bulgy, or smell abnormal and so on, and report to MARSRIVA immediately.
2. If you need to store the battery for a long time, please charge and discharge the battery every three months to ensure the best performance, and the best state of charge for storage is between 50%~60%.
3. Please use the battery in the temperature range which is defined in the manual.
4. The state of charge of batteries is 50% before shipment, please charge the battery before use or test.

⚠ CAUTIONS: What Not To Do

Please read and comply with the following conditions of installation and use of the battery, as incorrect installation or use of the battery may cause personal injury or damage to the product.

1. **DO NOT** throw the battery into water. Store batteries in a cool and dry environment when not in use.
2. **DO NOT** put the battery into fire or heat the battery, so as to avoid explosion or other dangerous events.
3. When charging the battery， please choose specialized charging equipment, follow the correct procedures, and do not use unqualified chargers.
4. **DO NOT** reverse positive and negative terminals, do not connect the battery directly to AC power to avoid battery short circuit.
5. **DO NOT** use batteries from different manufacturers or different kinds, types together ,and do not mix old batteries and new batteries.
6. **DO NOT** use the battery when it becomes hot, bulgy, deforms or leaks.
7. **DO NOT** puncture the battery by nail or other sharp objects; Do not throw, stamp on, impact or hit the battery.
8. **DO NOT** open or try to repair the battery when it is defective. Warranty is invalid if the battery is repaired or disassembled.

1.3 Product Features

1. Using the high-performance lithium iron phosphate (LiFePO4) as positive materials, the cycle life is more than 4000 times, floating life up to 10 years, prolongs the service life of backup power supply system.
2. Using the intelligent management system, it realizes the monitoring and control of battery system under charge, discharge, floating and standby, making sure the system is always in an ideal state of health.
3. Built with comprehensive monitoring system, the battery voltage, current, temperature, volume, state of health are monitored. It communicates with PC to realize the real-time monitoring and control through the core CPU.
4. The built-in intelligent balance module ensures the consistency of battery capacity and extends the service life.
5. It has an intelligent design, meeting the national standard requirements for remote measurement, remote communication, remote control and remote adjustment.
6. Working state and alarm display directly on control panel.
7. System with intelligent thermal management devices, ensures the system works in a wide range of temperature, -20℃ ~ 55℃.
8. It has good electromagnetic compatibility and can be matched with standard communication equipment compatibility.

2 PARAMETERS

2.1 Product Specifications

• Table 2.1 MR-LFP48-100-LRC Specifications

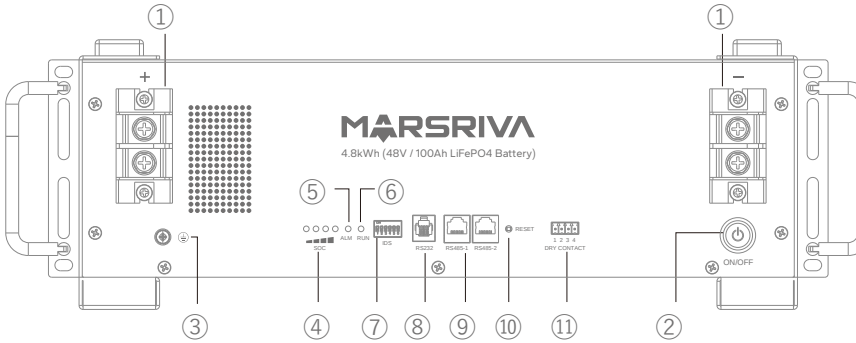
Model	MR-LFP48-100-LRC (GPS verison)
Battery Specification	
Battery Type	LiFePO4 Battery
Nominal Voltage	48V
Rated Capacity	100Ah
Rated Energy	4.8kWh
Battery Cycle Life	⩾4000 cycles @25℃, to 80% EOL
Charge & Discharge Parameter	
Nominal Charge Current	Max. 100A
Charge Over-current Protection	110A
Nominal Disharge Current	Max. 100A
Disharge Over-current Protection	110A
Over-voltage Protection	54.75V
Under-voltage Protection	40.5V
Function & Communication	
Cell Balance Function	Passive Balance
Power Off Self-Consumption	⩽200uA
Parallel Capacity	Up to 15 units
Communication Interface	Parallel, GPS Module, RS232 / SNMP (optional)
Monitoring	PC, Mobile APP, SNMP (optional)
Environmental & Physical	
Charge Ambient Temperature	0℃ – 60℃
Discharge Ambient Temperature	-20℃ – 60℃
Storage Temperature	-30℃ – 55℃
Humidity	5% – 95%
Dimensions (W×D×H)	480 × 442 × 135mm
Weights	42kg

Tips: This series of MR-LFP48-100-LRC batteries with GPS function, comes in two versions: with SNMP and without SNMP.
The only difference between the two versions is whether the battery has an SNMP interface and function; all other parameters and functions are the same.

2.2 Control Panel

The panel of LFP48-100-LRC battery system is shown in Figure 2.2

• Figure 2.2 Panel of MR-LFP48-100-LRC



• Table 2.3 Descriptions of the panel interface

NO.	Name	Description
①	Terminals	Positive and negative terminals for battery cables
②	Power Button	Press this button to active/power on the battery BMS
③	Grounding	Grounding cable connection
④	SOC Indicator	LED indicator for battery SOC (Remain capactiy)
⑤	ALM Indicator	LED indicator for alarm state
⑥	RUN Indicator	LED indicator for working state
⑦	Address Switch	Used for parallel system battery ID address
⑧	RS232 or SNMP	232 port for PC monitoring (For without SNMP version)
		SNMP port for SNMP monitoring (For with SNMP verison)
⑨	Parallel 485	For battery parallel communication, and PC monitoring
⑩	Reset Switch	Reset the battery system when it is not working
⑪	Dry Contact	Enables signal switching/control

2.3 Battery Management System (BMS)

• Voltage Protection

▶ Over-charge protection and recovery

During charging, if the voltage of any cell exceeds the setting for cell protection or total voltage of the system is greater than the setting for the system, the BMS stop charging. And when all voltage of each cell and total voltage of the battery drop to the recovering values, the protection removes automatically. The settings are shown as No. 1, 2 in table 2.4.

▶ Over-discharge protection and recovery

During discharge, if the voltage of any one cell or total voltage of the battery is lower than the protection settings, the BMS stops discharge. And when all cell voltage and total voltage go up to recovering-setting, the protection remove automatically. The settings are shown as No. 3, 4 in table 2.4.

• Current Protection

▶ Charging over-current protection and recovery

When the charging current is bigger than the charging over-current protection current value and more than the delay time of charging over-current protection, the system would enter the mode of charging over-current protection and turn off the charging MOS. The settings are shown as No. 5, 6 in table 2.4.

▶ Discharging over-current protection and recovery

When the discharging current beyond the charging over-current protection current and more than the delay time of discharging over-current protection, the system would enter the mode of discharging over-current protection and turn off the discharging MOS.when move the load,then the battery will recover. The settings are shown as No. 7, 8 in table 2.4.

▶ Short circuit protection and recovery

When the discharging current beyond the value of short circuit protection and reaches the delay time of the short circuit protection, the system would enter the mode of short circuit protection and turn off the discharge MOS. The settings are shown as No. 9 in table 2.4.

• Temperature Protection

▶ Cell Temperature Protection

There are several thermal sensors to monitor the cell temperature, if the temperature of any cell is higher than 65℃ or lower than 0℃, the BMS will stop charging, this is charge temp protection; If the temperature of any cell is higher than 65℃ or lower than -20℃, BMS will stop the discharge, this is the discharge temp protection. The settings are shown as No. 10-13 in table 2.4.

▶ Environment Temperature Protection

There is a thermal sensor to monitor the environment temperature, if the environment temperature is higher than 75℃, BMS will trigger the temperature protection and stop working. The settings are shown as No. 14 in table 2.4.

▶ PCB/MOS over-heat Protection

There is a thermal sensor to monitor the PCB/MOS temperature, if the PCB/MOS temperature is higher than 105℃, it will trigger the protection and stop charging or discharge until the temperature drop to normal range. The settings are shown as 15 in table 2.4.

• Cell Balance

▶ Smart Cell Balance

The BMS uses the resistance bypass method (Passive balance) to balance the cells. During charging, If all cell voltages are greater than 3.40V and the voltage difference is larger than 40mV, BMS will trigger the balancing process, the balance current is designed base on the capacity of battery pack.

Table 2.4 BMS Parameters (Default Values)

NO.	Type		Parameter	Protection Value	Recover Value
1	Voltage	Charge	Cell Voltage Protection	3.65V	3.35V
2			Total Voltage Protection	54.75V	50.25V
3		Discharge	Cell Voltage Protection	2.7V	2.9V
4			Total Voltage Protection	40.5V	43.5V
5	Current	Charge	Over Current 1	110A	Delay 60s
6			Over Current 2	120A	Delay 60s
7		Discharge	Over Current 1	110A	Delay 60s
8			Over Current 2	150A	Delay 60s
9			Short Circuit	500A	Delay 60s / Charge
10	Temp	Cell	Charge Over Temp	65℃	55℃
11			Charge Under Temp	0℃	5℃
12			Discharge Over Temp	65℃	55℃
13			Discharge Under Temp	-20℃	-15℃
14		Environment	Environment Over Temp	75℃	70℃
15		PCB/MOS	MOS Over Temp	105℃	85℃

2.4 Recommended Charge Parameters

To ensure battery safety, when using this product with an inverter or charger, please set the charge parameters according to the following recommended values. The parameters are shown as table 2.5.

Table 2.5 Recommended Charge Parameters

Model	Recommended Charge Parameters		
MR-LFP48-100-LRC	Constant Charge Voltage	Float Charge Voltage	Max. Charge Current
	53.3V	52.5V	100A

2.5 Recommended Discharge Parameters

To ensure battery safety, when using this product with an inverter, please set the discharge parameters according to the following recommended values. The parameters are shown as table 2.6.

Table 2.6 Recommended Discharge Parameters

Model	Recommended Discharge Parameters		
MR-LFP48-100-LRC	Cut-off Voltage	Cut-off SOC	Max. Discharge Current
	45.0V	5%	100A

NOTE: The discharge power of battery will decreases as its voltage drops during discharging. Please note this and try to ensure the load power is less than the battery discharge power to avoid triggering overload.

3 INSTALLATION

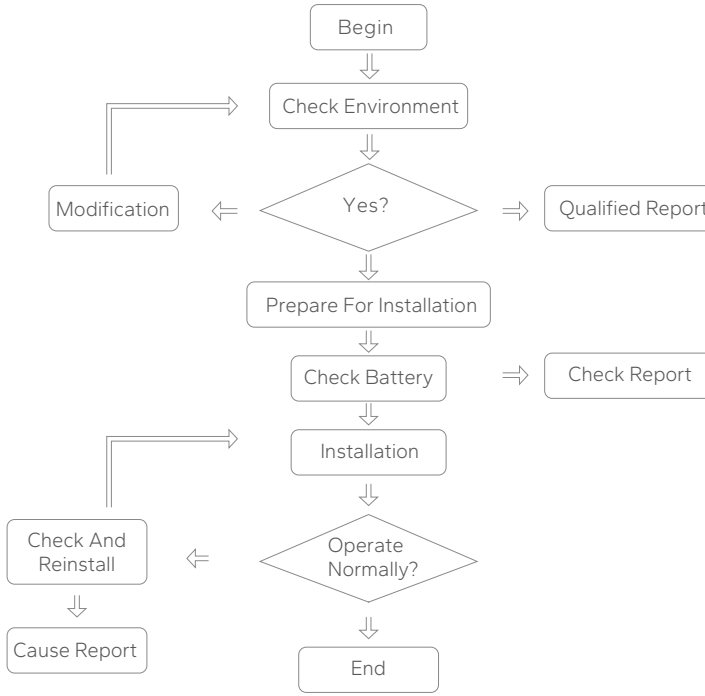
3.1 Preparation

• Safety Rules

The installation, operation and maintenance of this series LiFePO4 Telecom battery system must be performed by trained and qualified professional personnel. Before installation and use, please carefully read the product safety precautions and related operating rules. Strictly abide by the following safety rules and local safety regulations, otherwise may cause personal injury or damage to the product.

- ▶ Make sure that the Telecom equipment to be connected with the battery system is in good condition and free from defects;
- ▶ Before installation, make sure that the power supply system is under shut down state, while the battery system is also under shut down state;
- ▶ All the electricity cables must have corresponding grade of insulation, Please ensure that no exposed cables;
- ▶ Make sure that the battery and power system are reliably grounding.

Figure 3.1 Process of Installation



• Requirement for Installation Environment

The requirement of installation environment is shown in Table 3.2

Table 3.2 Requirement of Environment

Type	Requirement
Working Temperature	Max. -20℃ ~ 60℃, Recommend -15℃ ~ 55℃
Storage Temperature	Max. -30℃ ~ 55℃, Recommend 0℃-40℃
Relative Humidity	Max. 5% ~ 95%, Recommend 40%~70%
Atmospheric Pressure	86kPa ~ 106kPa
Site Requirements	No conductive dust and corrosive gas, no vibration. Keep away from heat and flame

• Tools and Materials

May use the tools and information are shown in Table 3.3

Table 3.3 Tools and Materials

Category	Description		
General Tools	 Multimeter	 Protective gloves	 Insulated safety boots
	 Protective clothing	 Safety goggles	 Anti-static wrist strap
Installation Tools	 Electric screwdriver	 Socket wrench	 Wire stripper
	 Phillips screwdriver (M4/M6)	 Electric drill	 Hammer

• Battery Check

① On the installation site, check the battery product packaging to make sure it is intact;
② Check battery box according to the packing list, make sure all the material is complete, if any damaged, please fill in the receipt;
③ Please be careful while handling batteries, to avoid any damage.
④ Check and confirm the electrical grounding position of power system room.

3.2 Installation

When begin to install the battery system, you should pay attention to the following matters:

① Installation space and load bearing. Make sure that there are sufficient fixed components to install the battery system, and to ensure that the battery mounting bracket or the cabinet is strong enough to bear the weight.
② Cable specifications ensure that the connection of the power supply line can meet the maximum current requirements of equipment operation.
③ Project layout. Ensure the whole construction process of power equipment, batteries and other reasonable layout.
④ Wiring layout. Ensure that the wiring is reasonable, orderly, and consider moisture-proof and corrosion prevention.
⑤ The whole installation process, operators should wear anti-static wristband.
⑥ The installation site should be at least two or more people to operate.

⚠ CAUTIONS:
Please ensure the installation site is safe before installation.

- Installation Step

Battery installation steps are shown in Table 3.4

Table 3.4 The installation steps

Step NO.	Name	Description
1	Turn off power supply	The system should be powered off, to ensure that there is no electricity in installation process
2	Mechanical installation	1. Installation of mounting lugs 2. Fixed installation of battery
3	Electrical installation	1. Grounding cable 2. Power cable installation 3. Installation of connecting equipment 4. Communication cable installation
4	Electrical commissioning	Power system commissioning

▶ Step 1. Turn off power supply

Before installation, please ensure the battery is powered off. At the same time, shut down the equipment which needs to connect to the battery.

▶ Step 2. Mechanical installation

① Mounting lugs installation. Equipment packaging with the chassis mounting lugs, before the installation of equipment, fix the mounting lugs on both sides of the battery box, ensure that the installation strong.
② Battery installation. Battery module preferably mounted in the rack 19 inch (or cabinet), when installed, portable handle arranged in parallel on the frame (or cabinet) supporting plate, push rack (or cabinet), ensure the mounting lugs and frame (or cabinet) edge fixing hole tightly, and then using a screwdriver with screw for fixation screwed into the rack to the mounting holes, to ensure that the battery pack is mounted solidly.

▶ Step 3. Electrical Installation

① Grounding cable. The grounding cable end with screw press-fit fixation in the chassis rear grounding hole, the other end is connected to the frame (or cabinet) grounding copper bar. To ensure the stable connection.

② Power line installation. When using a single battery, battery terminals are directly connected to the device or switch power supply terminal, if there are multiple batteries in parallel when in use, please connect all batteries in parallel with busbar.

③ Power equipment installation. Connect the equipment installation, clear the system of positive and negative pole terminal, connected with the red connection line connects the anode, black wire connecting the negative, to ensure that no connection error.

④ Communication cable installation. When the battery is used alone, please skip this step. When a plurality of batteries used in parallel according to table 2.4, please dial settings for each cell address code (to ensure that no duplicate address code), and then connect the communication interface of RJ45-RS485 one by one.

▶ Step 4. Electrical Commissioning

When these steps are completed, long press power button on the control panel to start the battery system one bye one, then boot up the whole power system, complete the installation.

⚠ **CAUTIONS:** If you have any question about the installation, please stop and contact MARSRIVA technical support immediately. If the battery does not start or control panel ALM lights, please disconnect the power line for inspection and reinstall and start, if still can not solve please contact MARSRIVA, to avoid damage to equipment or cause accidents.

3.3 Parallel Installation

Parallel installation should first follow the basic battery installation steps in part 3.2 "Installation". Parallel installation steps are shown in Table 3.5

Table 3.5 Parallel installation steps

Step NO.	Name	Description
1.	Prepare and check	Check voltage and SOC of each battery
2.	Parallel electrical wiring	1. Electrical wiring for parallel installation 2. Emergency braker installation
3.	Communicaiton wiring	Connect parallel communication cables
4.	Address switch setting	Set DIP address switch for communication
5.	System check	Check whether the parallel system can work

⚠ **CAUTIONS:** Never connect this product batteries in series!

▶ Step 1. Prepare and check

Before connecting batteries in parallel, check the voltage and State of Charge (SOC) level of each unit. Ensure that the SOC difference is less than 2% and the voltage difference is less than 0.1V (preferably <0.05V). If the SOC or voltage difference is significant, please individually adjust each battery to the average SOC and voltage of the battery group, by using a charger or discharge load. Parallel connection is strictly prohibited when the voltage difference exceeds 0.1V.

▶ Step 2. Parallel electrical wiring

① Parallel Electric Wiring:
When connecting batteries in parallel, it is recommended to use a star/radial connection topology. Do not use a daisy-chain connection topology. Additionally, do not stack multiple cable terminals on a single battery terminal hole. When using the star/radial connection topology, ensure that the cables from each battery to the positive and negative busbars have same length and specification. Then, connect the busbars to the load/inverter using cables of appropriate length and specification.

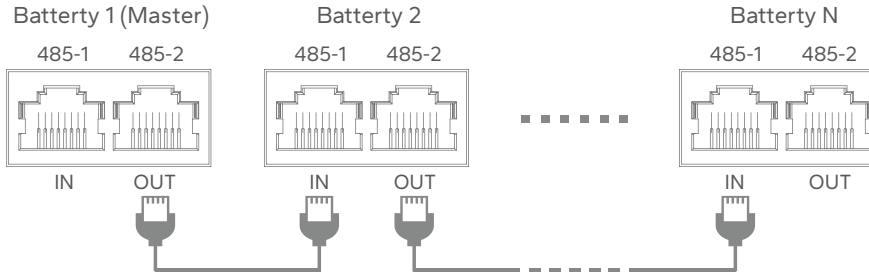
② Emergency Disconnect:
When using the star/radial connection topology, it is recommended to install a DC breaker on the cables between the busbars and the load/inverter. This can cut off power between the battery groups and the load/inverter in emergency situations.

For any special situation not covered above, please contact the MARSRIVA technical support team.

▶ Step 3. Communicaiton wiring

When connecting batteries parallel communication after electirc connection, please connect the parallel communication ports as shown in the diagram below. Please use standard 8-pin network cables for the parallel communication cables.

Figure 3.6 Parallel communication wiring

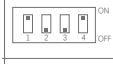
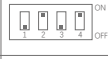
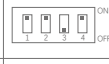
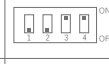
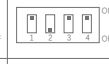
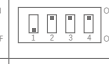
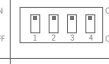


▶ Step 4. Address switch setting

This series battery product supports maximum of 15 units in parallel connection. After completing the parallel communication wiring, please set the DIP address switches for the master battery and each slave battery unit according to the following diagram.
At the below diagram, “1” means trun on, “0” means turn off.

(Some address switches have six DIP switches, it only need to set the first four on the left.)

Figure 3.7 Parallel DIP Address Switch Settings

Battery 1 (Master)	Battery 2	Battery 3	Battery 4	Battery 5	Battery 6	Battery 7	Battery 8
							
1000	0100	1100	0010	1010	0110	1110	0001
Battery 9	Battery 10	Battery 11	Battery 12	Battery 13	Battery 14	Battery 15	
							
1001	0101	1101	0011	1011	0111	1111	

▶ Step 5. System check

After the completion of the electricity and communication connections between the inverter and batteries, start each battery one by one.
First, use battery PC monitoring software, check whether master battery can read all slave batteries data. If it can, it indicates successful parallel communication between batteries.
Then turn on the master inverter, if you establish BMS communication between master inverter and master battery, check whether inverter has any display indicating successful BMS, and can read the correct battery data. (If the product has the function of BMS with inverter/PCS)

4. SHIPPING & STORAGE

4.1 Shipping & Storage

- Shipping

  According to the provisions of the product can be used in general means of conveyance, but should avoid throwing, rain fall, strong radiation and corrosion erosion. during transportation, please prevent the collision and strong vibration.

- Storage

  Store the device indoors, the ambient air temperature is 0℃ to 45℃, the average monthly relative humidity is not more than 90%, the ambient air without corrosive and flammable and explosive gas; storage warehouse should be ventilated, free of alkaline, acidic substances and other corrosive gases, without a strong mechanical vibration, shock, a strong electromagnetic field or direct sunlight. Capacity was maintained at 50% to 60% stores, and charging the battery every 6 months.

Table 4.1 Requirement of Environment

Type	Requirement
Working Temperature	Max. -20℃ ~ 65℃, Recommend -15℃ ~ 55℃
Storage Temperature	Max. -30℃ ~ 55℃, Recommend 0℃-40℃
Relative Humidity	Max. 5% ~ 95%, Recommend 40%~70%
Atmospheric Pressure	86kPa ~ 106kPa
Site Requirements	No conductive dust and corrosive gas, no vibration. Keep away from heat and flame

5. TROUBLE SHOOTING

5.1 LED Indicators

This series battery has three type of LED indicators: RUN, ALM, SOC. The working states of these indicators are as below.

Table 5.1 LED Display Description

	Indicators	RUN (Green light)	ALM (Red light)	SOC (LED1~4, Low-High) (Green light)			
Battery States	Event	LED6	LED6	LED4	LED3	LED2	LED1
OFF	Sleep/OFF	OFF	OFF	OFF	OFF	OFF	OFF
Static/Standby	Normal	Flash1	OFF	Light up certain LED based on the remaining capacity.			
	Alarm	Flash1	Flash3				
Charging	Normal	ON	OFF	Light up certain LED based on the remaining capacity. One SOC LED will flash to indicate charging.			
	Alarm	ON	Flash3				
	Over-voltage	ON	OFF	ON	ON	ON	ON
	Other Protection	OFF	ON	OFF	OFF	OFF	OFF
Discharging	Normal	Flash3	OFF	Light up certain LED based on the remaining capacity.			
	Alarm	Flash3	Flash3				
	Under-voltage	Flash2	OFF	OFF	OFF	OFF	OFF
	Other Protection	OFF	ON	OFF	OFF	OFF	OFF

Table 5.2 SOC/Capacity Display

	Working State	Charging					Discharging				
	LED	RUN	LED1	LED2	LED3	LED4	RUN	LED1	LED2	LED3	LED4
SOC(%)	0~25%	ON	Flash2	ON	ON	ON	Flash3	ON	OFF	OFF	OFF
	25~50%	ON	ON	Flash2	ON	ON	Flash3	ON	ON	OFF	OFF
	50~75%	ON	ON	ON	Flash2	ON	Flash3	ON	ON	ON	OFF
	75~100%	ON	ON	ON	ON	Flash2	Flash3	ON	ON	ON	ON

Table 5.3 LED Flash Mode

Flash Mode	ON	OFF
Flash1	0.25s	3.75s
Flash2	0.5s	0.5s
Flash3	0.5s	1.5s

Note: All LED lights are off when battery off, and RUN lights are long on in battery on. ALM light keeps on when the system is faulty. Battery capacity estimation has 4 green lights, each light represents 1/4 (25%) of the battery capacity. 4 lights are all on when battery has 100% capacity.

The Flash 1/2/3 Mode are shown as the 5.3 table.

5.2 Warning and Disposal

When the ALM indicator is on, battery has been alarmed or protected, please check fault reasons and take corresponding measures. Table 5.1 below is the main alarm condition.

Table 5.4 The main alarm and protection

State	Type	Indicator	Disposal
Charging	Over-voltage protection	ALM	Stop charge, check the battery reasons
	Over-current protection	ALM	Stop charge, check the battery reasons
	Temperature protection	ALM	Stop charge, check the battery reasons
Discharging	Low-voltage protection	ALM	Stop discharge, check the battery reasons
	Over-current protection	ALM	Stop discharge, check the battery reasons
	Temperature protection	ALM	Stop discharge, check the battery reasons

5.3 Common Faults and Solutions

Common faults and solutions are shown in Table 5.2

Table 5.5 Common faults and solutions

NO.	Fault phenomenon	Analysis	Solution
1	LED "RUN" does not light after START	Battery management system not activated	Press power button to restart. Or press the reset button to reset.
2	No DC output	Discharge MOS off	Restart battery and try again
3	Power supply time is too short	Battery capacity is insufficient or not full power	Maintenance or reduce load power.
4	Battery can not be charged to full	Power system DC output voltage falls below the minimum charge voltage	Regulating DC output voltage of power supply to battery suitable charging voltage
5	ALM LED always lights	Power line connection short circuit	Disconnect the power cable and check all cables
6	The battery output voltage is unstable	Battery management system does not operate normally	Press the reset button to reset the system, then reboot the system
7	Communication lost or data fault	Communication settings fail	Check the communication settings and correct it

Note: If you have some special technical problems which not mentioned above, please contact MARSRIVA technical staff.

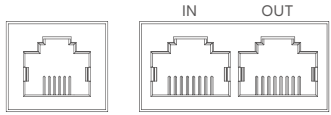
6. FUNCTION & COMMUNICATION

6.1 Communication Ports

This series product have differenet communication ports base on whether the product has SNMP function. The difference and pin assignment are as below.

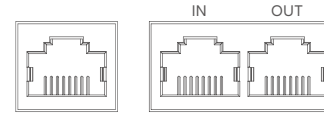
Figure 6.1 Communication Port of Product

MR-LFP48-100-LRC (without SNMP)



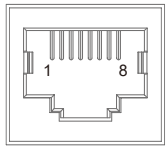
RS232 RS485 (Parallel)

MR-LFP48-100-LRC (with SNMP)



SNMP RS485 (Parallel)

Figure 6.2 Pin Assignment of Communication Ports

Interfaces	RS232		SNMP		RS485(Parallel)	
Function	PC Monitoring Communication		SNMP Communication		Parallel and PC Communication	
Pin Assignment 	PIN	Description	PIN	Description	PIN	Description
	1	NC	1	TX+	1	RS485-B
	2	NC	2	TX-	2	RS485-A
	3	TX	3	RX+	3	GND
	4	RX	4	VSS-1	4	NC
	5	GND	5	VSS-1	5	NC
	6	NC	6	RX-	6	GND
			7	VSS-1	7	RS485-A
			8	VSS-1	8	RS485-B

6.2 Advanced Functions

- **PC Software Monitoring**
  The PC monitoring software can read more detailed battery real-time data, BMS parameterand history working data.
- **GPS Module**
  Website platform or mobile APP can be used for monitoring the product via GPS module.
- **Anti-theft Gyroscope**
  Gyroscope can achieve physical anti-theft and communication anti-theft functions, it needs to be activated on the PC software.
- **SNMP Monitoring (optional)**
  Remotely monitor and manage multiple devices by using local area network via SNMP.

Please scan the QR code or contact MARSRIVA support team to get the files of these function.

Thank you for purchasing MARSRIVA product

PRODUCT WARRANTY CARD

Product :

Model :

Purchase Date (DD / MM / YY) :

Customer Name :

Telephone Number :

E-mail Address :

Dealer's Name and Address :

Serial Number* :

This Warranty applies only if the Product was newly manufactured on the Date of Purchase and not sold as used, refurbished, or manufacturing seconds. Please keep the proof of purchase and this warranty card for future service requests.

IMPORTANT!

Please store this card in a secured location for future reference.
Marsriva reserves the right to request this card before accepting repair requests.
This does not affect or limit your mandatory statutory rights.

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E-mail: support@marsriva.com
Made in China

Specifications are subject to change without notice, all product drawings are for reference only.