

# SHENZHEN GSL TECH CO LTD

## Product Specification



**Product Name:** Solar Energy Storage Battery

**Product Model :** GSL-48100

**Date** : 06/09/2021

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# Contents

1. Introduction .....	1
2. Product Introduction.....	1
3. Product Purpose.....	1
4. Product Appearance.....	1
5. Product Structure.....	2
6. Product Electric .....	3
7. Product Commitment .....	错误! 未定义书签。

## 1. Introduction

SHENZHEN GSL TECH CO LTD. (hereinafter referred to as "GSL") is a high-tech green energy enterprise providing customized solutions and products for power lithium battery, energy storage lithium battery and lithium battery power system for global users.

Based on advanced lithium battery applications and solutions, the company has always adhered to independent innovation. With advanced lithium-ion battery module development and design capabilities, good cost control ability and reasonable market positioning, the company has laid the core competitiveness of customized service for lithium battery enterprises.

## 2. Product Introduction

This product is made of lithium iron phosphate battery, which have the characteristics of good safety, long life, low internal resistance, and high charge and discharge efficiency. The battery module is welded by laser welding process, and use FPC for voltage and temperature sampling, and is connected to the BMS wiring harness through the terminal.

## 3. Product Purpose

GSL48100 Solar energy battery is mainly used for solar energy storage and can also be used for other similar purposes.

## 4. Product Appearance

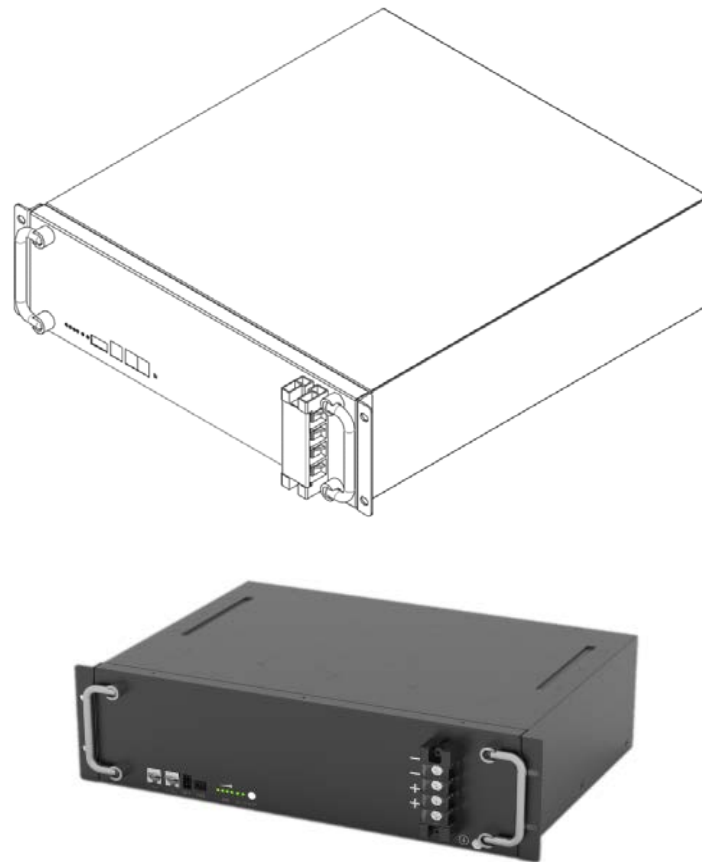


Figure 1. product appearance

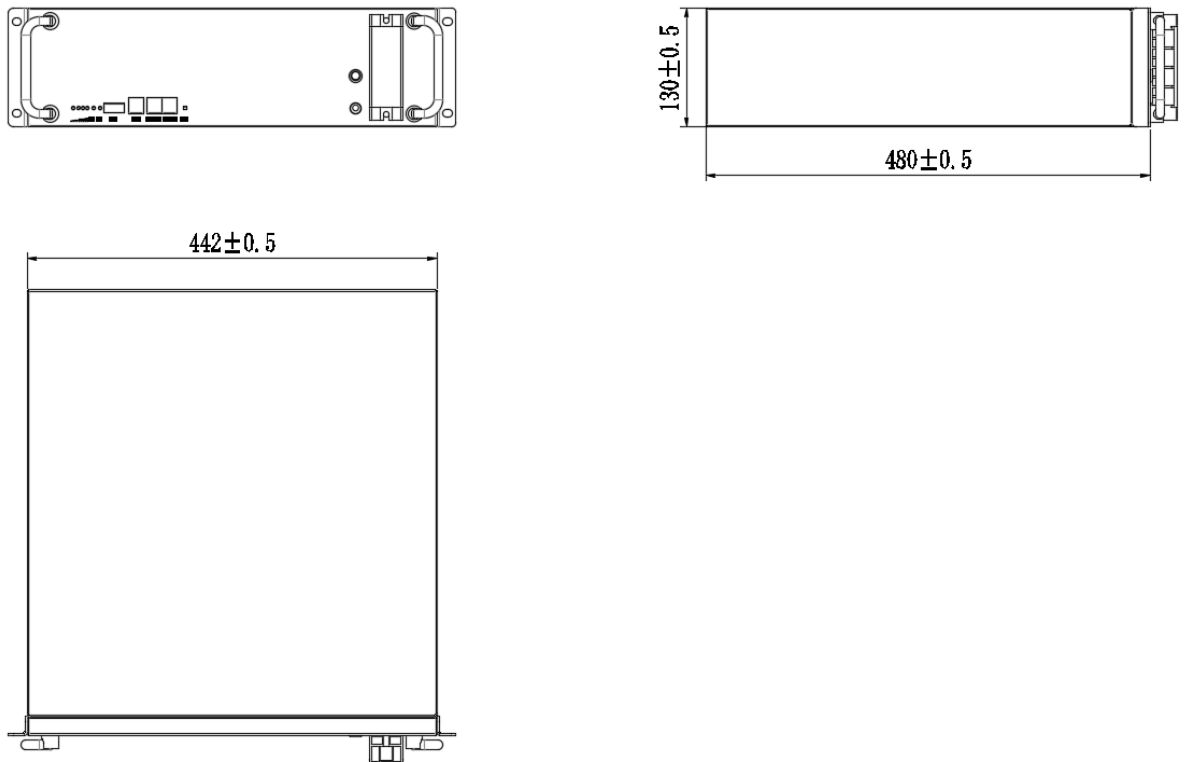


Figure 2. product size

## 5. Product Structure

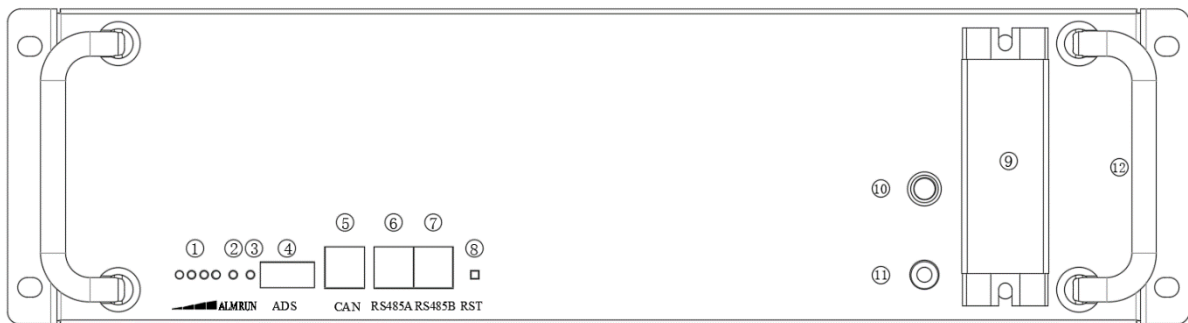


Figure 3. Product panel interface

Table 1. component table

Serial Number	Name	Label	Function Description
1	SOC indicator	/	/
2	Warning indicator	ARM	Alarm in case of battery failure
3	Operation indicator	RUN	Flashing during battery charging and discharging
4	Dial switch	ADS	Address setting for parallel connection of

			batteries
5	CAN	CAN	Communication with inverter
6	RS485A	RS485A	Battery pack cascade communication
7	RS485B	RS485B	Battery pack cascade communication
8	Reset switch	RST	BMS reset parameters
9	Positive and negative terminal	+/-	Battery positive and negative output
10	Switch	/	Switch to control BMS
11	Grounding hole	/	For installation of grounding wire
12	Handle	/	Easy to handle battery box

## 6. Product Electric

See the figure below for the electrical schematic diagram of telecom battery box.

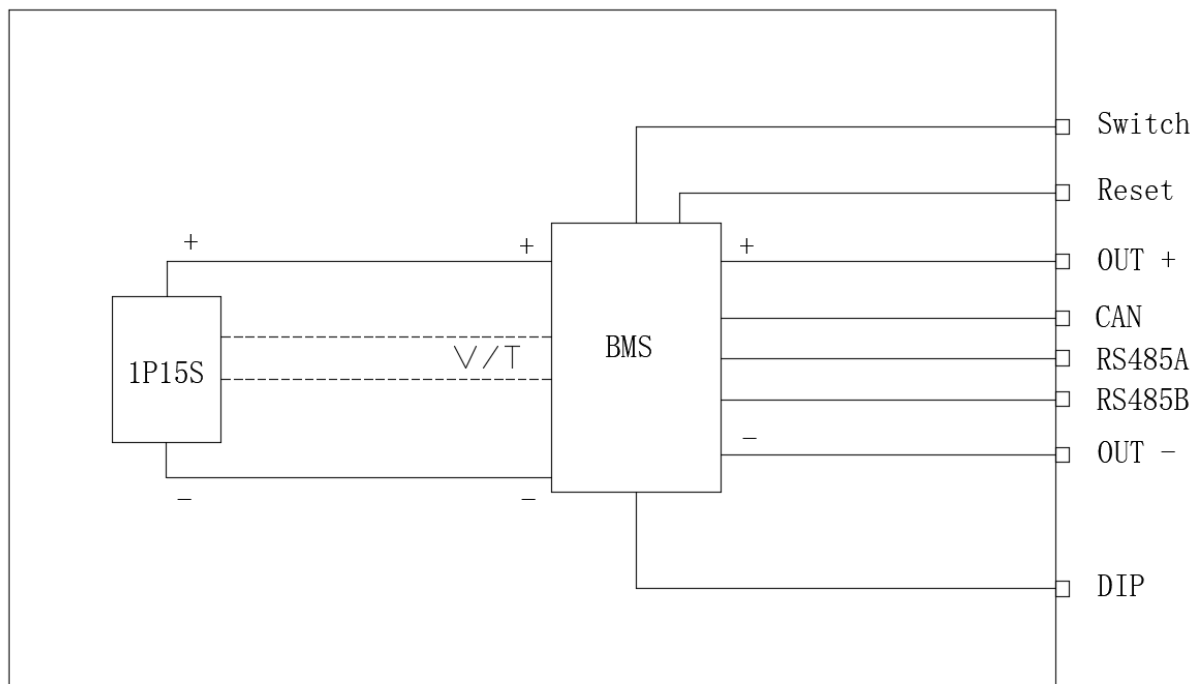


Figure 4. electrical schematic diagram of the product

Please refer to the table below for the electrical performance parameters of telecom battery box:

Table 2. product electrical parameters

Capacity	100 Ah @ 0.5C, 25°C (4800 Wh @ 0.5C, 25°C)
Cathode Material	LiFePO4
Rated Voltage	48V
Operating Voltage Range	42V~54V

<b>Max. Charging/discharging Current</b>	<b>100A/100A @ 25°C</b>
<b>Max. Discharging Power</b>	<b>4800W</b>
<b>Cycle Life</b>	<b>6000 cycles @ 0.5C, 80% DOD, 25°C</b>
<b>Cell Connection</b>	<b>1P15S</b>
<b>Weight</b>	<b>≤40kg</b>
<b>Dimension (W×D×H)</b>	<b>≤442 mm×480 mm×130 mm (excluding latches and terminals)</b>
Self-discharging Rate	≤1%/month/-20~45°C@95%RH
Charging and Discharging Capacity Efficiency	≥97%(@25°C)
Network Port	CAN;
Status Indication	SOC / ALM / RUN
<b>Max Number of Parallel-connected Battery</b>	<b>16pcs</b>
Installation	19-inch rack installation (horizontal or vertical)
Protection & Alarm	Protection or alarm against over-temperature, over-current, over-charge, over-discharge, short circuit, etc.
IP Rate	≥IP20
Cooling	Natural Cooling
Storage Temperature	7 days @ (-30°C~ -20°C)@(45°C~ 60°C), 95%RH; 6months @ -20°C~ 45°C, 95%RH
Operating Temperature	Charge: 0°C - 55°C; Discharge: -20°C~55°C (Degrading application with temperature beyond 0°C-45°C)
Operating Relative Humidity	5% - 95%
Altitude	≤4000m (Degrading application with altitude ranging from 3000m to 4000m)

## 7. Battery Management System Specification

### 7.1 BMS function introduction

- 1) : The BMS is designed for 15 series lithium battery.
- 2) : The BMS have all functions which are:
  - Overcharge detection function; Over discharge detection function
  - Over current detection function; Short detection function
  - Temperature detection function; Balance function
  - Communicate function; Alarm function
  - Total capacity function;
  - Storage history function

## 7.2 BMS Protect parameter

Items	Details	Standard
Cell overcharge protection	Overcharge detection voltage	3.65±0.025V
	Overcharge detection delay time	Typical:1.0s
	Overcharge release voltage	3.38±0.02V
Cell over-discharge protection	Over-discharge detection voltage	2.5±0.02V
	Over-discharge detection delay time	Typical:1.0s
	Over-discharge release voltage	2.9±0.02V or charge release
Over-current protection	discharge Over-current protection current1	150±10A
	discharge Over-current detection delay time 1	1S
	discharge Over-current protection current 2	200±10A
	discharge Over-current detection delay time 2	≤100m±50ms
	Charge OC protection current	150±10A
Short protection	Short protection current	250±10A
	Protection condition	Load short
	Detection delay time	≤300us
	Protection release condition	Charging release
Temperature(T) protection	Charge high T protection	55±3°C
	Charge high T recover	50±5°C
	Discharge high T protection	65±5°C
	Discharge high T recover	60±5°C
	Charge low T protection	-5±5°C
	Charge low T recover	0±5°C
	Discharge low T protection	-20±5°C
	Discharge low T recover	-15±5°C
Balance	Balance threshold voltage	3.45V
Communication	It has Canbus/RS485 standard communication interface, it can real-time monitoring the capacity of battery bank, the voltage, current, environment temperature, and charging/discharging current.	
Alarm	It has over-temperature, over charge, under-voltage, over-current, short circuit alarm	



## 8. Appendix

### Handling Precautions and Guideline For Li-ion Rechargeable Batteries

#### Preface

This document of 'Handling Precautions and Guideline Li-ion Rechargeable Batteries' shall be applied to the battery cells manufactured by GSL ENERGY.

#### Note (1) :

The customer is requested to contact GSL ENERGY in advance, if and when the customer needs other applications or operating conditions than those described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

#### Note (2) :

GSL ENERGY will take no responsibility for any accident when the cell is used under other conditions than those described in this Document.

#### Note (3):

GSL ENERGY will inform, in a written form, the customer of improvement(s) regarding proper use and handling of the cell, if it is deemed necessary.

#### **Danger!**

- Do not immerse the battery in water or allow it to get wet.
- Do not use or store the battery near sources of heat such as a fire or heater.
- Do not use any chargers other than those recommended by **GSL ENERGY**.
- **Do not reverse the positive(+) and negative(-) terminals.**
- Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
- Do not put the battery into a fire or apply direct heat to it.
- Do not short-circuit the battery by connecting wires or other metal objects to the positive(+) and negative(-) terminals.
- Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
- Do not strike, throw or subject the battery to sever physical shock.
- Do not directly solder the battery terminals.
- Do not attempt to disassemble or modify the battery in any way.
- Do not place the battery in a microwave oven or pressurized container.
- **Do not use the battery in combination with primary batteries (such as dry-cell batteries) or batteries of different capacity, type or brand.**
- Do not use the battery if it gives off an odor, generates heat, becomes discolored or deformed, or appears abnormal in any way. If the battery is in use or being recharged, remove it from the device or charger immediately and discontinue use.

#### **Caution!**

Do not use or store the battery where is exposed to extremely hot, such as under window of a car in direct sunlight in a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.

If the battery leaks and electrolyte gets in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.