

Battery System Specification

B12100B Battery System B12100B

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B12100B Battery System

Type	Parameter
Product Name	Battery System
Product Model	B12100B
Product Specification	105Ah4S1P
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Catalogue

Preface.....	5
1. Product Overview.....	5
1.1. Product Information.....	5
1.2. Product Functions.....	6
1.3. Information on Battery System	7
1.4. Technical Terms.....	10
2. Assembly.....	11
2.1. Mechanical Architecture.....	11
2.2. Mechanical Interface.....	13
2.3. BMS.....	14
2.4. Information on the Nameplate of Battery System.....	17
3. Requirements for Packaging.....	18
3.1. Schematic Diagram of Packaging.....	18
3.2. Packing List.....	18
4. Precautions and Prohibitions in the Use of Lithium-ion Battery Module.....	19
4.1. Storage	19
4.2. Safety Precautions and Prohibitions.....	19
4.3. Electricity Abuse	19
4.4. Environmental Abuse	20
4.5. Others.....	20
4.6. Warning	22

Preface

The document covers the specifications of the battery system B12100B.

1. Product Overview

B12100B includes the battery core and the controller of battery modules, furnishing power output of low-voltage system for electric vehicles

1.1. Product Information

System	Version	Remarks
Battery system	A	B12100B
Battery cell	-	105Ah
Battery management system	-	SPB22-SW16-004-A-A02

1.2. Product Functions

- The battery system is provided with the function of power output providing.
- The battery system is provided with the function of monomer voltage detection.
- The battery system is provided with the function of total voltage detection.
- The battery system is provided with the function of temperature detection.
- The battery system is provided with the function of current detection.
- The battery system is provided with the function of charging overcurrent protection.

1.3. Information on Battery System

Description of battery system

Item		Unit	Specifications	Remarks
Rated capacity		Ah	105Ah	@ 0.5C, 25°C
Configuration		-	4S1P	
Operating temperature	Charging working temperature	°C	0~55	-20~55 with heating function
	Discharge working temperature	°C	-20~55	
Storage temperature	Short-term (within 1 month)	°C	-20~45	
	Long-term (within one year)	°C	0~35	
Rated voltage		V	12.8	Cell 3.2V
Maximum voltage		V	14.6	Cell 3.65V
Minimum voltage		V	10	Cell 2.5V
Standard capacity		kWh	≥1.28	@ 0.5C, 25°C
Weight		Kg	15±2	

Maximum discharge current (@5S, 25°C, SOC50%, BOL)	A	200(60S)	
Maximum charging current (@5S, 25°C, SOC 50% BOL)	A	150(10S)	
Continuous discharge current (@25°C, SOC50%, BOL)	A	120	
Continuous charging current (@25°C, SOC 50% BOL)	A	50	
SOC status of battery system before shipment Standard Charge (@ 25°C)	-	Constant Current: ≤0.5C Constant Voltage:3.65V End Condition(Cut off): ≥0.02C	
SOC	-	SOC 30%±3%	
Self-discharge rate (@SOC 100%, 25°C , Loss/Month, @BOL)	%	Max 3	
Safe reliability	-	GBT Certificate	cell
Insulativity	MΩ	Min 20MΩ/1000VDC	@25°C±5°C, RH50%
Cooling mode	-	Natural(Passive) Convection	
Heating function	-	Temperature rises by 8 degrees in 1 hour.	Heating by charging mode
	-	On: Minimum temperature ≤6degrees	
	-	Off: Minimum temperature ≥15 degrees	

Working range of SOC	%	5~ 100%	
Ingress protection	-	IP67	
Bluetooth	-	4.0	
Cycle life	-	>3500	@25℃, 0.5C charge, 1C discharge, DOD 100%(SOC30~100%)
Remaining capacity at the end of life	-	EOL 70%	According to warranty period, driving pattern, temp. profile, etc

1.4. Technical Terms

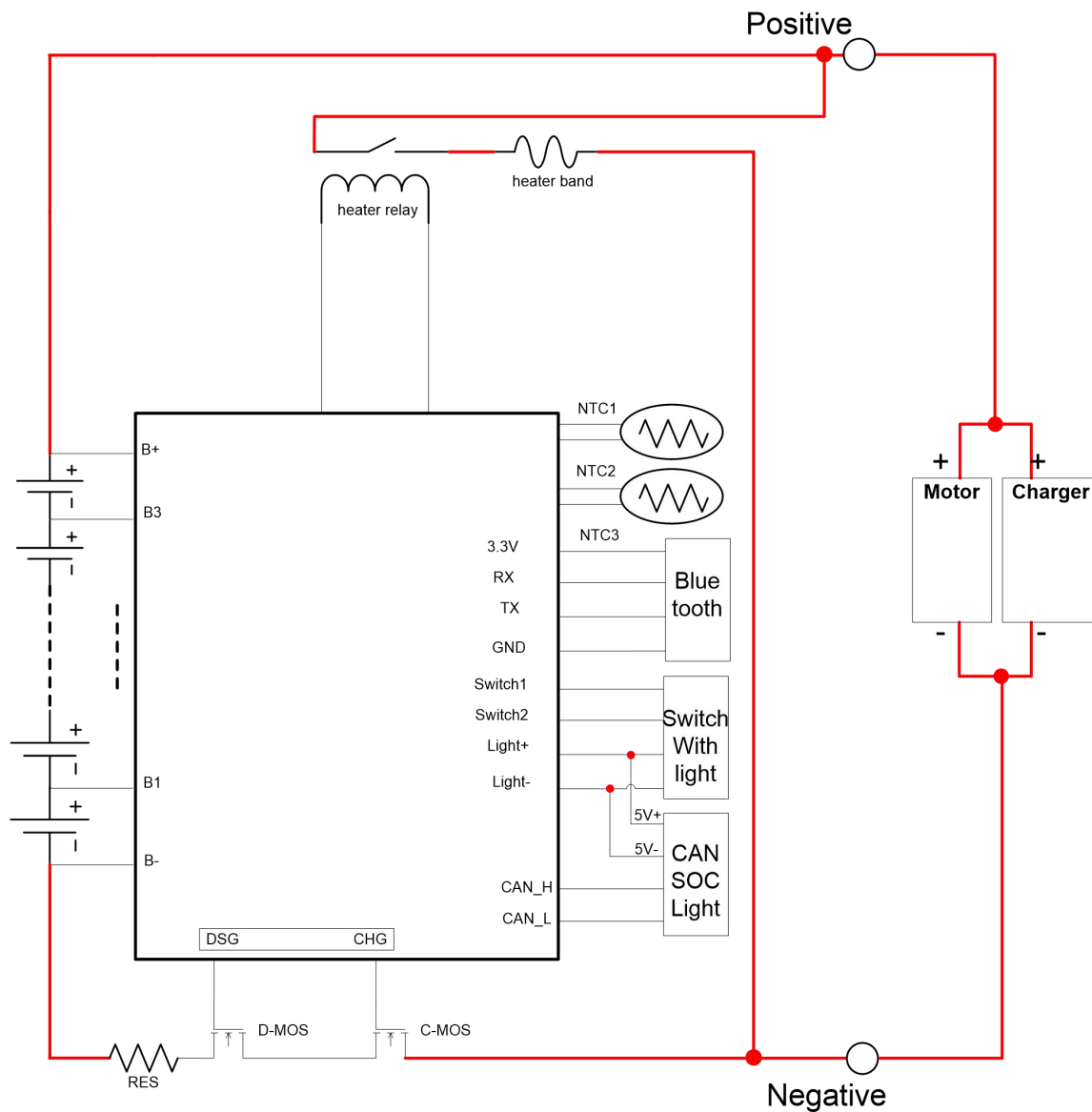


Figure 1. Schematic Diagram of Battery System

2. Assembly

2.1. Mechanical Architecture

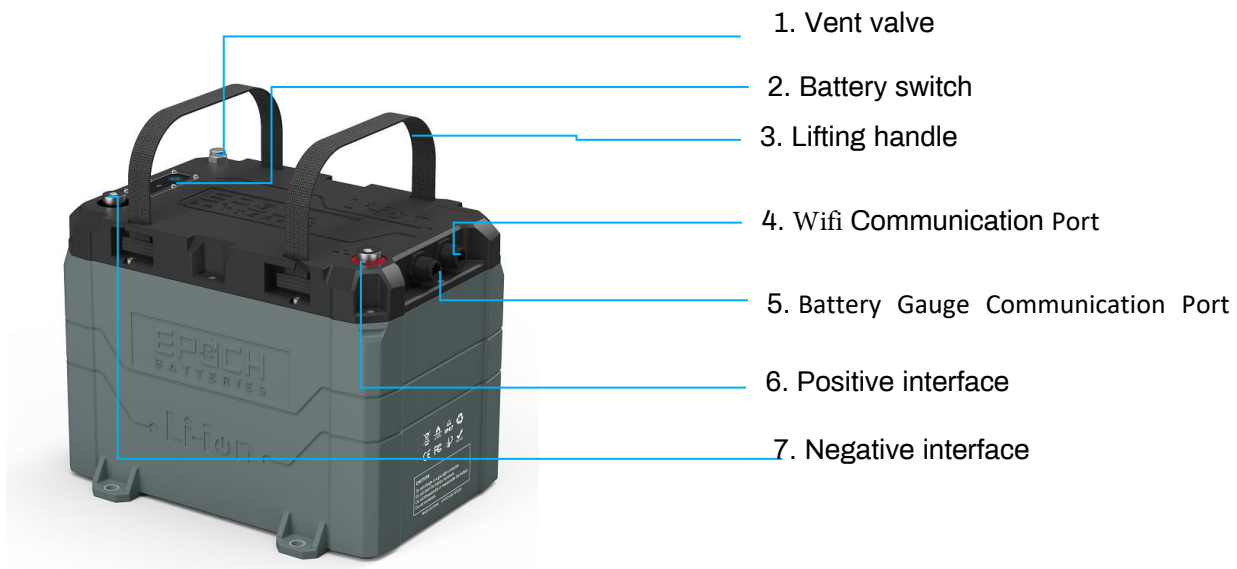


Figure 2. Schematic diagram of battery system

No.	Part Name	Description	Quantity
1	Vent valve	-	1
2	Battery switch	-	1
3	Lifting handle	-	2
4	Communication Interface	-	1
5	Charging communication interface	-	1
6	Positive interface	-	1
7	Negative interface	-	1

2.2. Mechanical Interface

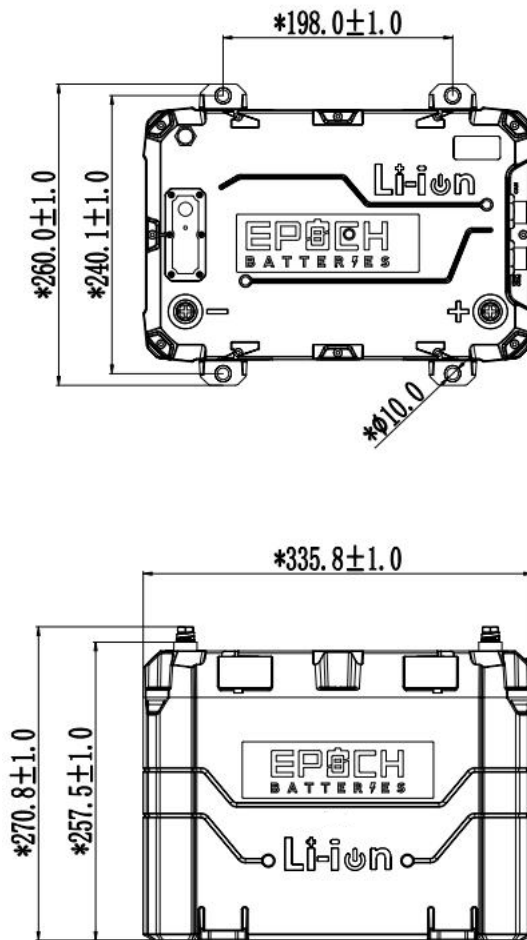


Figure 3. System Tolerance

Basic Dimensions

Name	Size
Size of battery system (mm)	335.8(L) x 260(W) x 270.8 (H)

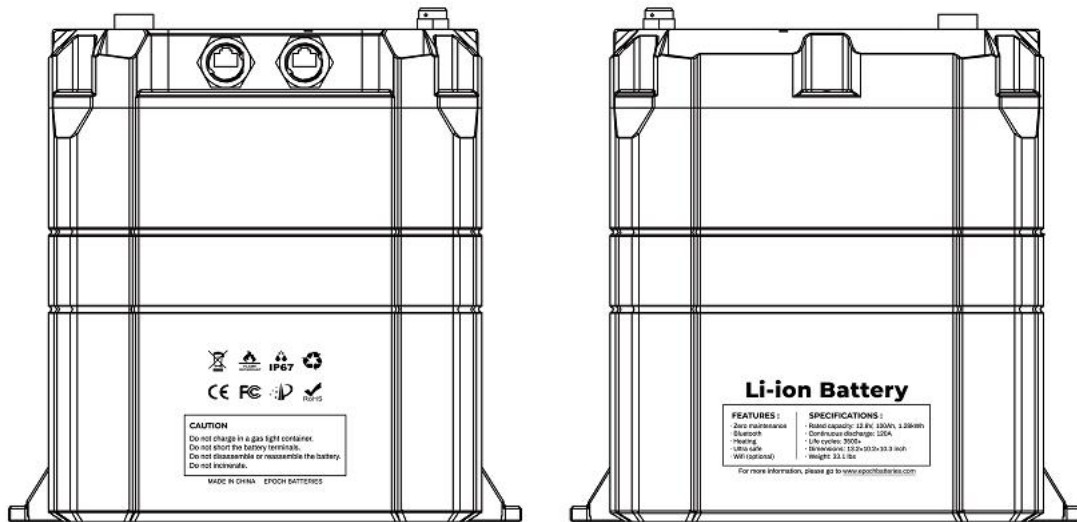
2.3. BMS

Parameters BMS

NO.	Item		Standard
1	Current	Self-discharge Current (Active mode)	<30mA
		Self-discharge Current (Error mode)	<6.8mA
		Self-discharge Current (Shutdown mode)	≤400uA
		Self-discharge Current (Shutdown mode)	≤30uA
		Max Charge/Discharge Current	150 A/ 200A
		System Inrush Current	TBD
2	Over Charge Protection	Over Charge Protection Voltage	3.65±0.05 V
		Over Charge Release Voltage	3.34V
3	Over Discharge Protection	Over Discharge Protection Voltage	2.7±0.05V
		Over Discharge Release Voltage	3.0±0.05V
4	Charge Over Current Protection	Charge Over Current Protection Current	150A±2%
		Charge Over Current Protection Delay	10S
		Charge Over Current Protection Release	Self release after 1min
5	Discharge Over Current Protection1	Discharge Over Current Protection Current	200±2% A
		Discharge Over Current Protection Delay	30S
		Over Current Release	Remove loader

6	Discharge Over Current Protection	Discharge Over Current Protection Current	286±10A
		Discharge Over Current Protection Delay	1S
		Over Current Release	Remove loader
7	Short Circuit Protection	Short Circuit Protection Current	>500A
		Release Condition	Remove loader
8	Charge Over Temperature Protection	Charge High Temperature Protection	55℃
		Charge High Temperature Release	50℃
		Charge Low Temperature Protection	0℃
		Charge Low Temperature Release	5℃(By heating)
9	Discharge Over Temperature Protection	Discharge High Temperature Protection	60℃
		Discharge High Temperature Release	55℃
		Discharge Low Temperature Protection	-20℃
		Discharge Low Temperature Release	-10℃
10	Heater working condition	Heater ON when cell temperature in charging	3℃
		Heater OFF when cell temperature in charging	16℃
		Heater OFF when cell temperature in charging	-
11	Communication Mode	CANBUS 250Kbs	-
12	In Parallel Function	Up to 2	-

2.4. Information on the Silk screen of Battery System



3. Requirements for Packaging

3.1. Schematic Diagram of Packaging

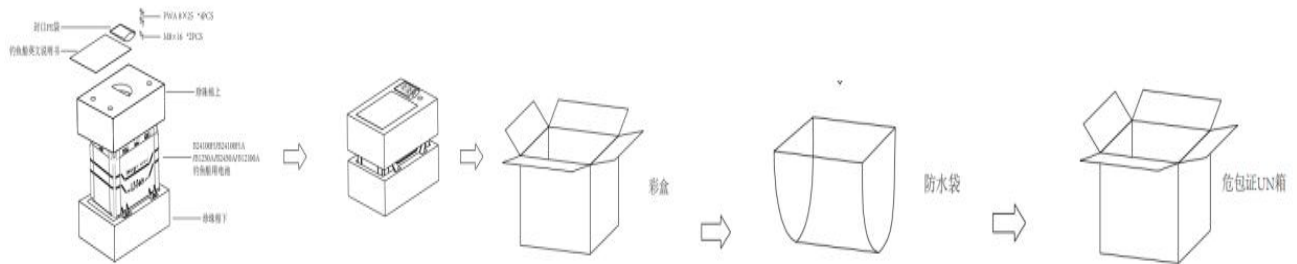


Figure 7. Schematic Diagram of Packaging

3.2 Packing List

NO.	Part Name	Part Number	Product Specification	Package Quantity
1	Battery system	B12100B	105Ah 4S1P	1pcs

4. Precautions and Prohibitions in the Use of Lithium-ion Battery Module

Before making use of battery modules, please be sure to read the user manual and precautions for dealing with battery modules.

Improper operation of lithium-ion batteries may result in leakage, heating, smoking, explosion or fire. This may cause performance degradation or failure. Please be sure to operate the batteries in strict compliance with the instructions carefully.

4.1. Storage

Time	Temperature
Short term (within 1 month)	-20~45℃
Long term (within one year)	0~35℃

Store battery modules at room temperature.

Customers are required to finish incoming inspection within one month upon the arrival of goods.

4.2. Safety Precautions and Prohibitions

With an attempt to guarantee product safety, please list the following precautions in the instruction manual.

4.3. Electricity Abuse

- Please make use of a dedicated charger.
- Batteries can only be used or charged on special occasions.
- Reverse charging is strictly prohibited.
- The charging current must be controlled at the value prescribed in the specifications of batteries.
- The cut-off voltage for charging is 14.8V (3.65V x 4)
- The charger must have the specifications to stop charging batteries by detecting the specified cut-off current.
- The discharge current must be controlled within the specification value prescribed by the product.
- The discharge cut-off voltage must be over 10V (2.5V x 4)

4.4. Environmental Abuse

- Never put batteries near fire or heat sources.
- Never throw the batteries into the fire.
- Never soak the batteries in water or seawater.

4.5. Others

- Never store metal objects such as keys or screwdrivers near batteries.
- Never intentionally short-circuit (+) and (-) terminals with metal objects.
- Never pierce the batteries with sharp objects such as needles or screwdrivers.
- Never heat a part of the batteries with heating objects such as an electric soldering iron.
- Never hit the batteries with heavy objects such as hammers or heavy objects.
- Never step on the batteries or drop the batteries on the hard ground.
- Never disassemble the batteries or modify the design of the batteries, including the circuits.
- Never directly weld anything on the batteries.
- Never make use of badly scarred or deformed batteries.
- Never put batteries in microwave ovens, dryers or high-pressure containers.
- Never disassemble the batteries yourself.
- Never put the batteries in the water.
- Never expose the batteries to splashing water.

- Never expose the batteries to humid environment.
- Never use the batteries after a fall accident.
- Please be sure to read the operating instructions of the charger before making use of the charger.
- Please be sure to read the user manual of the application before installing and removing batteries from the application.
- Batteries or modules required to be stored for a long time should be removed from the application and stored in a suitable place at room temperature.
- When charging, using and storing batteries, please keep the batteries away from static objects and materials.

4.6. Warning

- In the event that the charging is not finished within the prescribed time, please stop charging.
- If the batteries are abnormally heated, smelly, discolored, deformed or otherwise abnormal in the course of use, charging, discharging or storage, please stop making use of the modules.

When leakage or odor is found, please stay away from fire or heat at once. In the event that liquid leaks to skin or clothes, rinse it off at once with plenty of clean water.

- Never rub your eyes in the event that liquid leaks out of the batteries and enters your eyes.
- Please immediately wash your eyes with plenty of water and seek medical treatment.
- In the case that the terminals of the batteries get dirty, please wipe them with a dry cloth before making use of the battery modules.
- The batteries can be used within the following temperature range, not beyond the temperature range of -20~55°C.
- Before disposing of the terminals, please cover the terminals of batteries with appropriate insulating tape.



THANKS!

Epoch Batteries