SmartGen

MAKING CONTROL SMARTER

BPL52-280

LIQUID-COOLED BATTERY BOX

USER MANUAL

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Table 1 Software Version

Date	Version	Note
2025-06-23	1.0	Original release.

CONTENT

1 OVERVIEW

BPL52-280 Liquid-cooled Battery Box is lithium iron phosphate battery with energy storage medium that is highly safe and has a long cycle life, which is modular, easy to install and maintain. With high-efficiency liquid-cooling heat dissipation technology, it can effectively control the temperature of the battery module, significantly enhancing the safety, reliability and cycle life of the battery system. The built-in fire control module guarantees the system safe operation.

2 NAMING CONVENTION

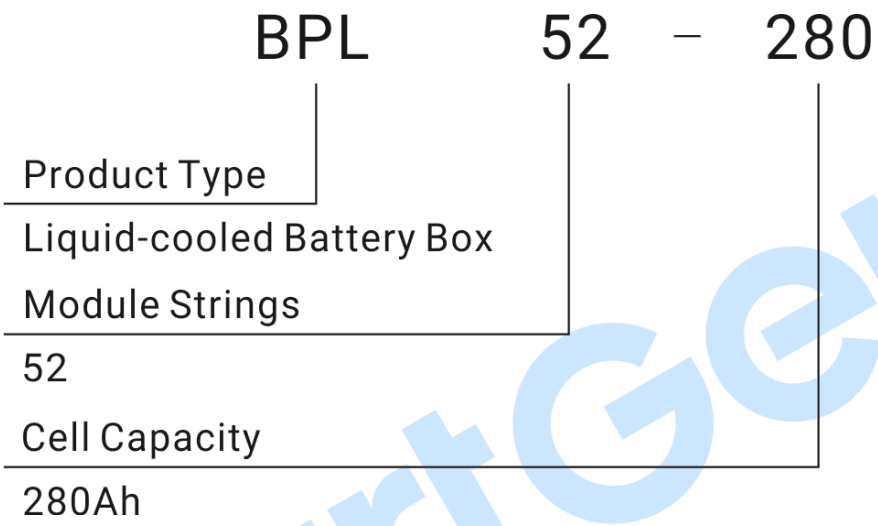


Fig.1 Naming Convention

3 PERFORMANCE AND CHARACTERISTICS

- **High-efficiency heat dissipation:** The integrated liquid-cooling cycle system using coolant to quickly remove the heat generated by the battery, ensuring that the battery operates within the optimal temperature range and extending tis service life;
- **Intelligent monitoring:** Built-in temperature sensor and monitoring system enable it to monitor internal battery box temperature in real time and intelligently adjust cooling efficiency, prevent overheat;
- **Compact structure:** Optimized battery box structure maximizes the usage space and ensures good heat dissipation effect and mechanical strength;
- **Safety and protection:** Equipped with electrical protection mechanism and built-in fire control module, it can run safely under various working conditions;
- **Easy maintenance:** Modular design makes it convenient for daily inspection and maintenance and reduce the operation cost;
- **High protection class:** Protection class can reach IP67.

4 APPEARANCE

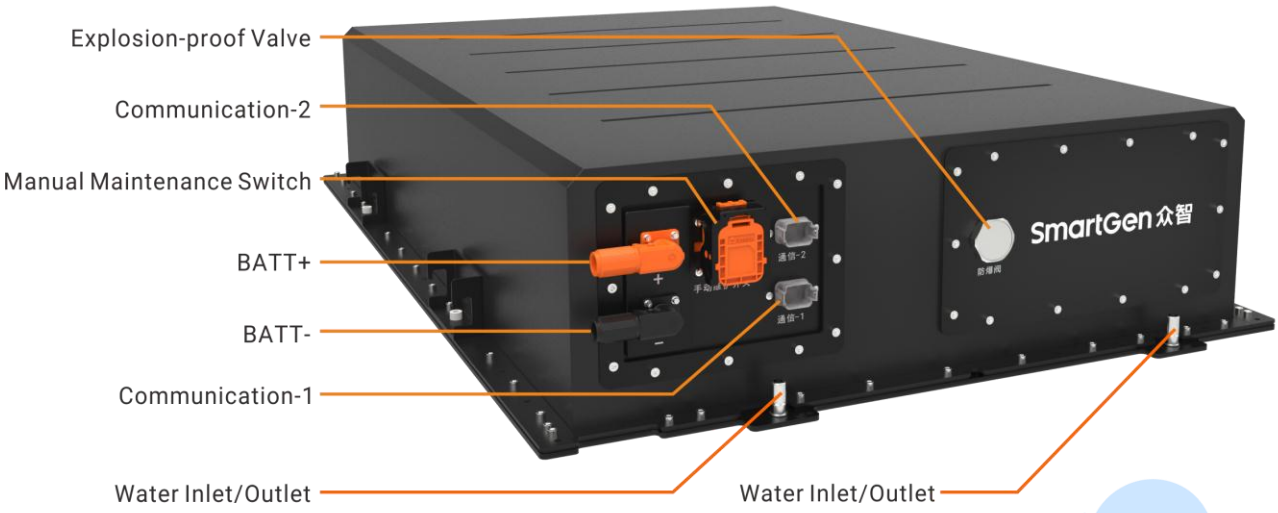


Fig.2 Appearance Diagram

5 OVERALL DIMENSIONS

Unit: mm

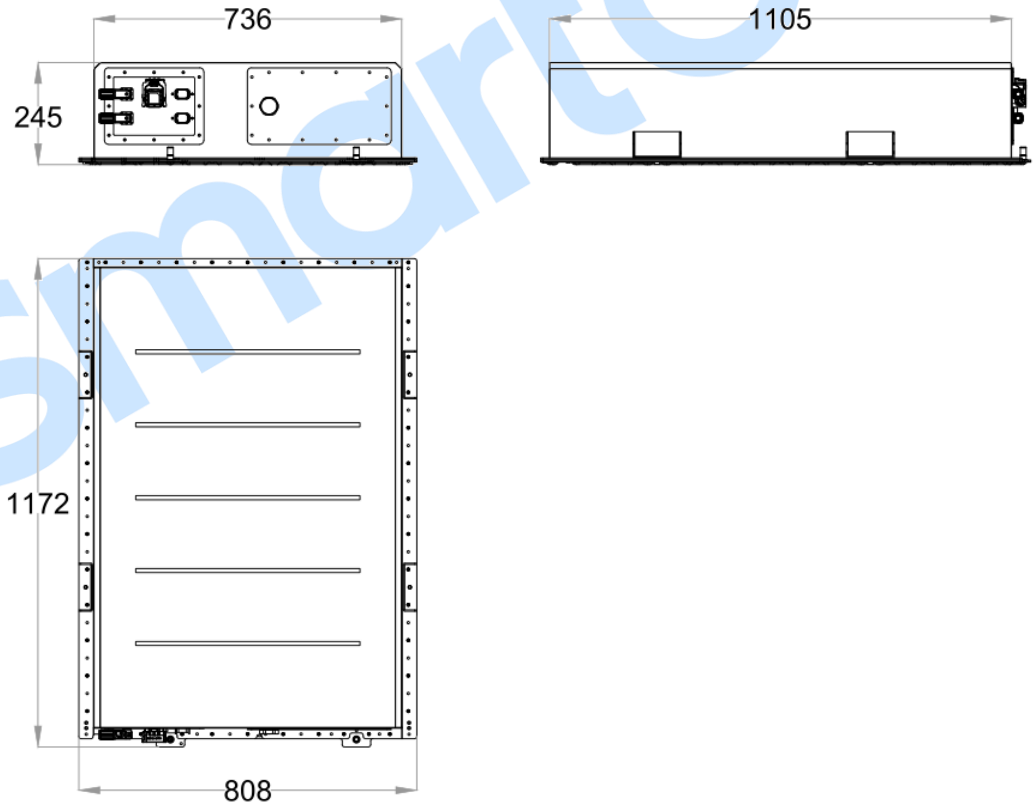


Fig.3 Overall Dimensions

6 TECHNICAL PARAMETER

Table 2 Technical Parameters

Item	Parameter
Model	BPL52-280
Cell Type	LFP
Cell Specification	3.2V/280Ah
Group Method	1P52S
Rated Energy	46.6kWh
Rated Voltage	DC166.4V
Working Voltage Range	DC145.6V~187.2V
Maximum Continuous Charge Rate	0.5C
Maximum Continuous Discharge Rate	0.5C
Cooling Method	Liquid-cooling
Built-in PACK-level Fire Control	Perfluorohexanone (aerosol for special order)
Protection Level	IP67
Dimensions	808mmx1172mmx245mm
Weight	400kg

7 TERMINAL DEFINITION

Table 3 Terminal Definition of Communication-1

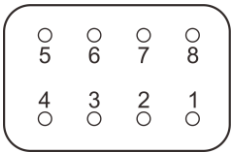
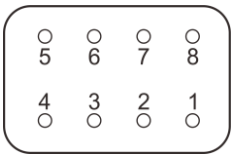
Figure	No.	Definition	Function
	1	VIN+	DC24V power supply.
	2	VIN -	
	3	CANH	BMU communication port CANH.
	4	NC	/
	5	NC	/
	6	NC	/
	7	CANL	BMU communication port CANL.
	8	ID IN	ID auto-coding.

Table 4 Terminal Definition of Communication-2

Figure	No.	Definition	Function
	1	VIN+	DC24V power supply
	2	VIN -	
	3	CANH	BMU communication port CANH.
	4	TR2	TR1 and TR2 are short-connected to 120Ω terminal match resistor. The TR1, TR2 at the end of the battery cluster is connected.
	5	TR1	
	6	NC	/
	7	CANL	BMU communication port CANL.
	8	ID OUT	ID auto-coding.

8 INSTALLATION AND USE

- Please ensure that the battery box and its surroundings are dry and clean, and no other damage before installation.
- Connect the coolant inlet and outlet and ensure the sealing is good.
- Connect the wiring of the battery box, ensure that it has good contact.
- Starting the cooling system, observe the operation situation and ensure that there is no abnormal situation.
- Regularly check the coolant status, level and system pressure. Please handle the abnormal situation in time.

9 NOTES

- Please install and use it under the guidance of professionals.
- Do not start the cooling system without coolant.
- Do not use the battery box under too hot or too cold environment.
- Please stop using immediately and contact the after-sales when battery or cooling system is abnormal.

10 MAINTENANCE

- Regularly check the coolant status, and replace it in time if there is pollution or deterioration.
- Regularly check the connection of battery box and cooling system, ensure that there is no leakage.
- Regularly check the battery contact point, ensure that it has good contact.
- Keep the battery box clean to avoid dust and debris affecting the heat dissipation effect.

11 OPTIONAL COMPONENT

Table 5 Optional Component

Item	Specification	Qty.	Remark
Orange ESS High-voltage Connector Head	ESP-250A-70-OR-00	1	70mm² wire diameter is recommended.
Black ESS High-voltage Connector Head	ESP-250A-70-BK-00	1	70mm² wire diameter is recommended.
8P Plug	AT06-08SA	2	
Matching Pin	AT62-16-0822	12	0.3-0.5mm² wire diameter is recommended.
Matching Clamping Plate	AW8S	2	
Connector Plug	A114017	6	
Water Inlet/Outlet Joint	CQC14	2	Select the inner diameter of liquid-cooling pipe according to the joint specification.