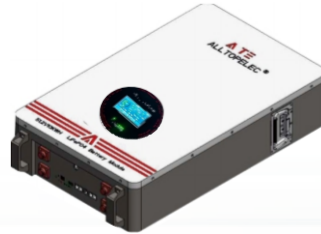
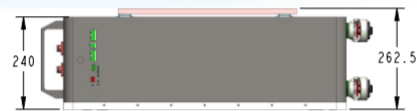
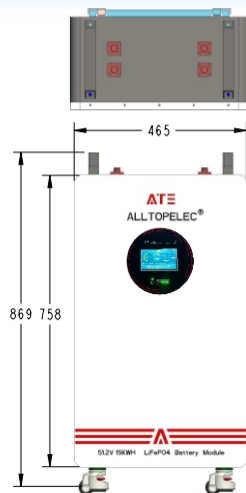


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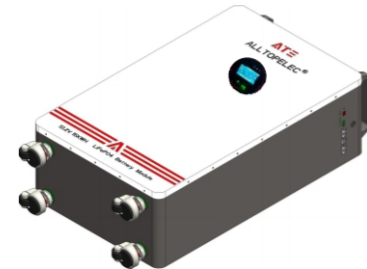


51.2V 10KWH POWER WALL NEW DESIGN

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51.2V 15KWH POWER WALL NEW DESIGN

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**ADD: MANILA, CEBU, DAVAO, ISABELA, PALAWAN,
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Edition number: A5

Day period: 2023-1-12

Instruction manual for wall mounted energy storage battery

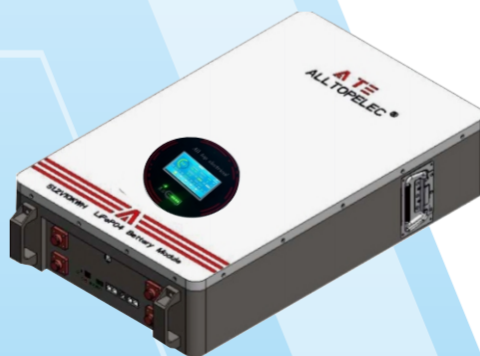
Model :LFP-51.2V100Ah

Model :LFP-51.2V200Ah

Model :LFP-51.2V300Ah

Draft	Checked	Approval

Customer Name/Part Number	
Customer Approval	
Date	





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File number:2023011203

Edition number: A5

Day period: 2023-1-12

catalogue

1.Scope f Application and User Instructions.....	3
1.1 Scope of Application	3
1.2 User Instructions	3
2.Term and Definition.....	3
2.1 Standard Charging Method.....	3
2.2 Standard Discharging Method.....	3
2.3 Nominal Capacity.....	3
3.Product Structure 、 Model and Dimension.....	3
3.1 Lithium Battery Pack Structure.....	3
3.2 Product Model and Explanation	3
3.3 Dimensions	4
4.Product Performance Parameters.....	5
5.Function Introduction.....	6
5.1 Voltage Protection Function	6
5.2 Current Protection Function	6
5.3 Temperature Protection Function	6
5.4 Short-circuit Protection Function	6
6.BMS Main Parameters BMS	7
7.Operating Instruction	10
7.1 Switching Panel Introduction.....	10
7.2 BMS Can Communicate With The Inverter.....	11
7.3 Battery Wiring Overview Diagram.....	12
7.4 Parallelconnection.....	12
8.Test Environment、 Instrument and Equipment.....	12
8.1 Standard Testing Conditions.....	12
8.2 Test instruments and test requirements.....	14
9.Quality assurance.....	13
10.Packaging, Storage and Transportation.....	13
10.1 Packaging.....	13
10.2 Storage.....	13
10.3 Transportation.....	13
11.Use Attention.....	13
11.1Charging.....	13
11.1.1 Selection of charger.....	13
11.1.2 Limiting conditions of charging current, voltage and temperature.....	14
11.1.3 Overcharge.....	14
11.1.4 Prohibition of Reverse Charging.....	14
11.2 Discharging.....	14
11.2.1 Limiting conditions of discharging current, voltage and temperature.....	14
11.2.2 Over-discharging.....	14
12.Danger warning.....	14
13.General Troubleshooting Method.....	14
14. Warranty Card.....	15
14.1 Sales Record	15
14.2 Maintenance Record	16



ATE ALLTOPELEC

File number:2023011203

Edition number: A5

Day period: 2023-1-12

1. Scope of Application and User Instructions

1.1 Scope of Application

This specification is applicable to the description of main performance indexes of Lithium battery.

1.2 User Instructions

The user must strictly follow the test or use method in the specification. If you have any objection to the test item or test method in the table, please consult with the supplier.

The precautions listed in this specification shall be read carefully by the user before the first use, and reliable protective measures shall be taken during the use of the battery. Reference Standard GB/T31484-2015、GB/T31486-2015、GB/T31241-2014.

2. Term and Definition

2.1 Standard Charging Method

At 25 ± 2 °C, charge the battery with constant current of 40.0A (0.2C) to the specified voltage of 3.7V or total voltage of 58.4v, and stop charging.

2.2 Standard Discharging Method

At 25 ± 2 °C, discharge to 2.6 V or 43.2V with a constant current of 40.0A (0.2C) , and stop discharge.

2.3 Nominal Capacity

Nominal capacity, the discharged capacity of the battery fully charged in 2.1 mode and discharged in 2.2 mode, unit: ah.

3. Product Structure 、 Model and Dimension

3.1 Lithium Battery Pack Structure

The lithium battery pack is composed of 64 individual cells of model LFP 14173215-200Ah through 16S1P mode, and the outer package is 1.2mm iron box.

3.2 Product Model and Explanation

LFP-51.2V200Ah-16S1P

(1) (2) (3)

(1) "LFP" indicates that the battery type is lithium iron phosphate battery;

(2) "51.2V200Ah" means that the nominal voltage of the battery pack is 51.2V and the nominal capacity is 200Ah;

(3) "16S1P" means that the batteries are grouped by 16strings.



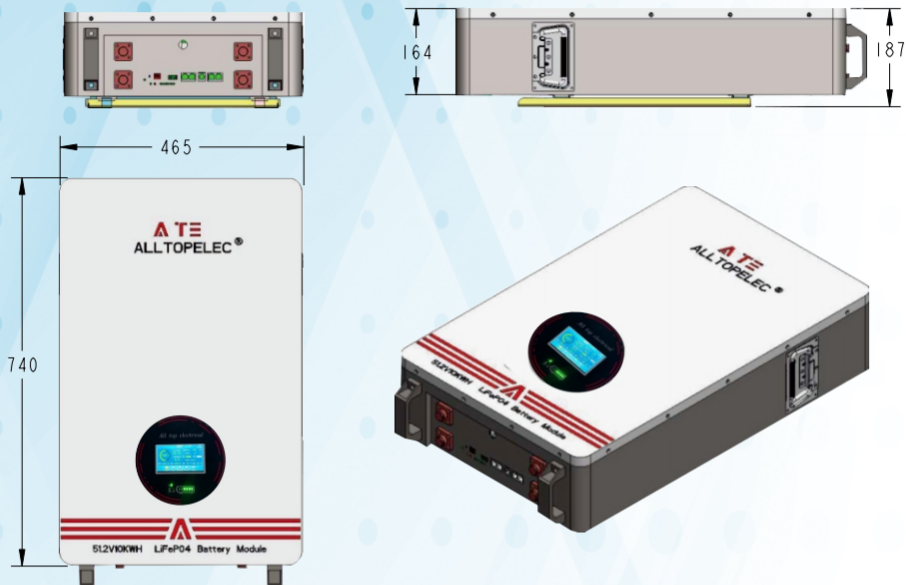
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File number:2023011203

Edition number: A5

Day period: 2023-1-12

3.3 Dimensions



Model number	LFP-51.2V200Ah-16S1P				
Dimension	Length 740 mm*Width 465 mm*Heighth 164mm				
BOM details					
Serial number	Project	Sspecification	Quantity	Unit	Remarks
1	Cell	IFP 14173215-200Ah	16	pcs	self-made
2	box	740*465*164mm	1	pcs	External cooperation
3	Wiring terminal	IF-FM6-BSM6-200A-C	4	pcs	Outsourcing
4	BMS	LFP16 S 100A	1	pcs	Outsourcing
5	Display screen	UPLCD	1	pcs	Outsourcing
6	Switching plate	JBD-UP16S010-CON V1.2	1	pcs	Outsourcing



ATE ALLTOPELEC

File number:2023011203

Edition number: A5

Day period: 2023-1-12

4. Product Performance Parameters

Item	Specification	Remark
Nominal Capacity	200Ah	0.2C discharge
Nominal Voltage	51.2V	3.2V×16 (16 string)
Charging limit voltage	Battery pack : 57.6V--58.4V Cell: 3.6V--3.65V	
Charge Current	Standard charge: 100A	Standard charge
Max. charge current	100A	
Cont. Discharge Current	100A	Standard discharge
Maximum Continuous Discharge Current	200A	
Discharging limit voltage	Battery pack : 44.8V Cell: 2.8V	
Balancing Function	60mA continuous passive equalization	
Weight (Approx.)	95 kg	
Dimensions (L,W,H)	Length: 740±1mm Width: 465±1mm Height: 164±1mm	
Energy Density(Approx.)	160Wh/kg (Monomer) 120Wh/kg (Combination)	
Operating Temperature	Charge : 0 ~ 45°C Discharge: -20 ~ 55°C	
Storage Temperature	Short period less 0°C~45°C	
Battery SurfaceTemperature	≤65°C	
Storage humidity	Relative humidity:≤75%RH	

		File number:2023011203
		Edition number: A5
		Day period: 2023-1-12

5. Function Introduction

5.1 Voltage Protection Function

Discharge low-voltage protection: During discharge, when the voltage of any cell is lower than the protection value, the overdischarge protection is started and the battery stops supplying power to the outside. When the voltage of all cells is restored to the rated return value range, the protection is removed.

Overvoltage protection: During charging, the system stops charging when the total voltage of the battery pack or the voltage of any single cell reaches the protection value. When both the total voltage and the voltage of a single unit return to the rated return difference range, the protection is removed.

5.2 Current Protection Function

Charging overcurrent protection: When the charging current is greater than the protection value, the system stops charging. The protection is removed after the system delays the rated time.

Discharge overcurrent protection: When the discharge current is greater than the protection value, the system stops discharging. The protection is removed after the system delays the rated time.

5.3 Temperature Protection Function

Charging low-temperature/overtemperature protection: When the battery temperature exceeds -10°C to $+55^{\circ}\text{C}$, the system starts the charging temperature protection, stops charging, and restores the rated return difference.

Discharge low-temperature/overtemperature protection: When the battery temperature exceeds -20°C to $+65^{\circ}\text{C}$, the system starts the discharge temperature protection and stops external power supply. The protection is removed after the rated return difference is restored.

5.4 Short-circuit Protection Function

If a short circuit occurs when the battery is activated, the system starts the short circuit protection, stops external discharge, and restores the short circuit fault.

For details about the preceding protection parameters, see BMS Main Parameters. The main BMS parameters can be set.



ATE ALLTOPELEC

File number:2023011203

Edition number: A5

Day period: 2023-1-12

6. BMS Main Parameters

Function	project	Specification			unit
		minimum value	typical value	maximum value	
Function	Overvoltage protection voltage	3.620	3.650	3.680	V
	Overcharge protection delay time	10 00	20 00	30 00	MS
	Overcharge protection recovery voltage	3.330	3.380	3.430	V
	Over-discharge protection voltage	2.600	2.70	2.800	V
	Over-discharge protection delay time	1000	2000	3000	MS
	Over-discharge protection recovery voltage	2.85	2.95	3.05	V
	Over -discharge protection recovery condition	Voltage self-recovery or charge recovery			
	Charging overcurrent protection	Charging overcurrent protection value	100	115	120
Charge overcurrent delay		0.5	1	1.5	S
Charge overcurrent release condition		Automatic recovery after 60S delay			

		File number:2023011203
		Edition number: A5
		Day period: 2023-1-12

Discharge overcurrent protection	Discharge overcurrent 1 protection value	100	115	120	A
	Discharge overcurrent 1 protection delay	5	10	15	S
	Discharge overcurrent 2 protection value	200	300	350	A
	Discharge overcurrent 2 protection delay	250	500	750	MS
	Discharge overcurrent protection recovery condition	Delay 60S automatic release			
	Short circuit protection current		1800		A
	Short circuit protection delay time	200	300	600	us
	short circuit protection recovery	after disconnecting the load .			
	Description of short circuit	Short-circuit description: short-circuit current less than the minimum value or higher than the maximum value may cause short-circuit protection failure, short-circuit current exceeds 3000 A, short-circuit protection is not guaranteed, and short-circuit protection testing is not recommended.			
Discharge high temperature protection (external)	temperature protection value	67	70	73	℃
	Temperature protection release value	57	60	63	℃
Discharge low temperature protection (external)	temperature protection value	-23	-20	-17	℃
	Temperature protection release value	-18	-15	-12	℃

		File number:2023011203
		Edition number: A5
		Day period: 2023-1-12

Charging high temperature protection (external)	temperature protection value	62	65	68	℃
	Temperature protection release value	52	55	58	℃
Charging low temperature protection (external)	temperature protection value	-8	-5	-2	℃
	Temperature protection release value	-3	0	3	℃
FET discharge high temperature protection (built-in curing)	temperature protection value	110	115	120	℃
	Temperature protection release value	80	85	90	℃
Environmental high temperature protection (built-in)	temperature protection value	72	75	78	℃
Environmental low temperature protection (built-in)	Temperature protection release value	62	65	68	℃
	temperature protection value	-23	-20	-17	
Balance function	Temperature protection release value	-18	-15	-12	
	Iron-lithium balanced turn-on voltage	3.470	3.500	3.530	V
	Opening pressure drop of iron lithium	-	30	-	mV
	Balance current	20		60	mA
	balanced way	Static/charge equalization			
Balance type	Time-sharing equalization \pulse equalization				



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File number:2023011203

Edition number: A5

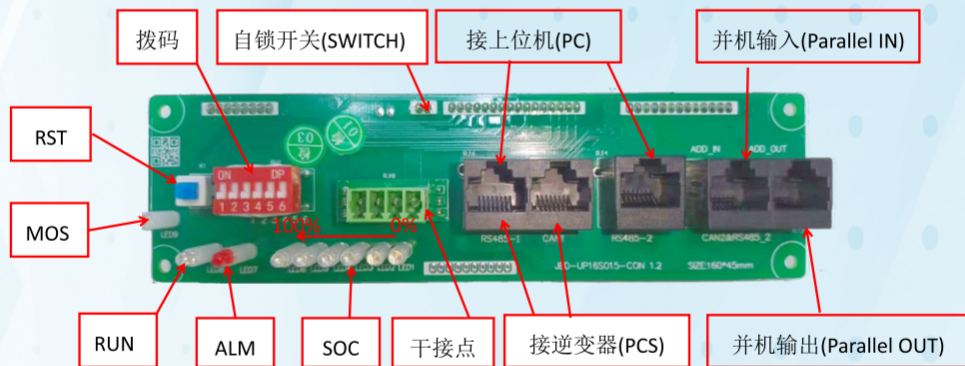
Day period: 2023-1-12

Charging current limiting function	Charging current limit enable condition	Turn on after charging overcurrent protection
	Charge current limit	20±2A
	Charge current limit off	Charging current <1A or overvoltage protection

7. Operating Instruction

7.1 Switching Panel Introduction

RS485 转接板接口图示(默认标准)(RS485 interface icon (default)):



7.2 BMS Can Communicate With The Inverter

The current support of RS485 protocol: 1.Pylon 2.Growatt 3.Voltronic 4. Luxpower 5.Deye 6.Invt 7.Sme.

CANBUS Support: 1.Pylon 2.Victron 3.Goodwe 4.Growatt 5.Luxpower 6.Deye 7.Sofar 8.Solis 9.SMA

The above brands of inverters can be adapted to connect to the battery system.



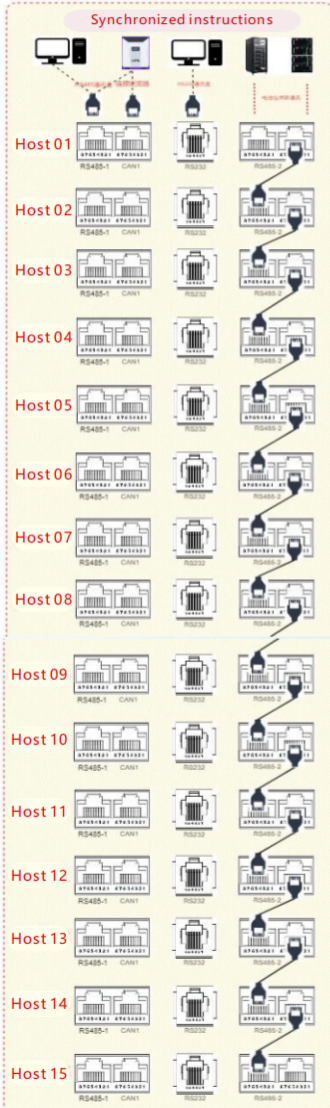
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File number:2023011203

Edition number: A5

Day period: 2023-1-12

Precautions for parallel wiring: Automatic coding parallel mode: After wiring is completed, the host must be the last to turn on.





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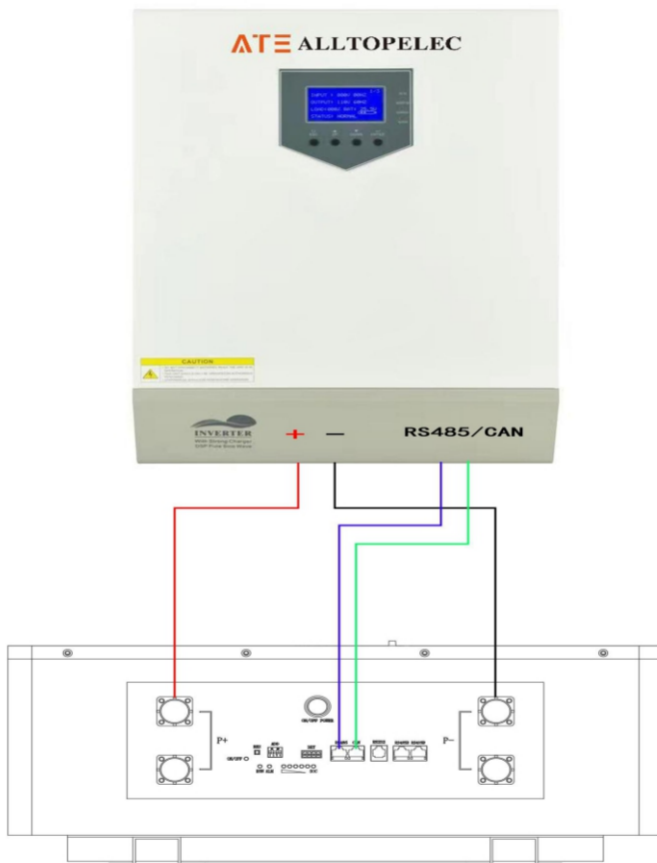
File number:2023011203

Edition number: A5

Day period: 2023-1-12

7.3 Battery Wiring Overview Diagram

Connection to the inverter



Positive harness

Negative harness

RS485 Communication cable

CAN Communication cable



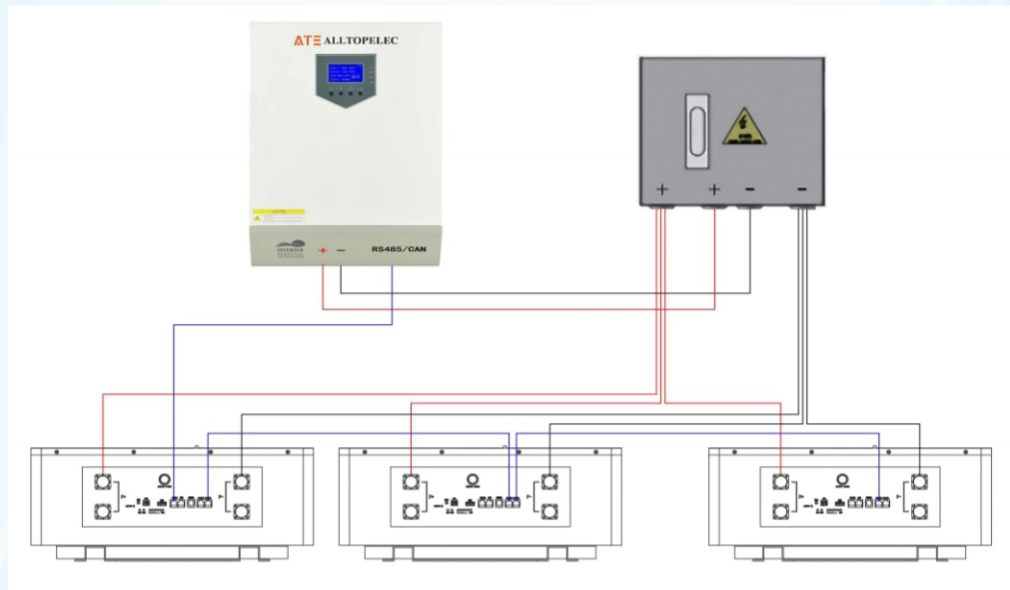
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File number:2023011203

Edition number: A5

Day period: 2023-1-12

7.4 Parallelnconnection



Positive harness

Nagative harness

RS485 Communication cable

Note: For operational safety and regulatory compliance, a separate DC overload protector or disconnect between the battery and inverter is required.

Warning: All wiring must be performed by a professional. Using the proper cable for battery connection is very important for safe and efficient system operation. To reduce the risk, please use the cables provided by our company, or the cable specifications recommended by us.

8. Test Environment、 Instrument and Equipment

8.1 Standard Testing Conditions

8.1.1 Temperature : $25\pm 2^{\circ}\text{C}$;8.1.2 Humidity Range: $\leq 75\% \text{RH}$;

8.1.3 The atmospheric pressure : 86kPa~106kPa.



ATE ALLTOPELEC

File number:2023011203

Edition number: A5

Day period: 2023-1-12

8.2 Test instruments and test requirements

The instruments, apparatus and equipment used in the test shall meet or exceed the requirements of relevant test standards.

9. Quality assurance

The battery pack is guaranteed for 5 years from the date of leaving the factory. Any problems not caused by the quality of the battery itself are not within the scope of the warranty.

After receiving the battery, if the battery is damaged after unpacking, the user should find out and contact the dealer or manufacturer in time.

10. Packaging, Storage and Transportation

The polymer Li-ion battery should be stored in a cool, dry and well-ventilated area, and should be far from the fire and the high temperature.

10.1 Packaging

- Each battery pack should be packaged with a product manual.
- The name, model, quantity, manufacturer and date of delivery shall be indicated in the packing case.

10.2 Storage

- The best capacity in storage is 50%~80% , The open circuit voltage of the battery pack is between 52.6 V and 53.2V.
- The battery should be stored within the proper temperature and humidity range specified by specification.
- For long-term storage, the battery needs to be fully charged every quarter.

10.3 Transportation

- Forbidden to mix battery with other goods.
- Forbidden to immerse battery into liquid such as water or soak it with liquid.
- The highest (The maximum ambient temperature during battery transportation should be lower than 45 °C).
- Avoid vibration, shock or extrude the battery. Handle carefully when moving it.

11. Use Attentions

11.1 Charging

11.1.1 Selection of charger

The battery pack must be charged with a 3C certified lithium iron phosphate battery charger

11.1.2 Limiting conditions of charging current, voltage and temperature

Charging must be carried out under the technical conditions specified in this specification. Charging outside the scope of conditions may lead to battery heating, performance degradation or even failure, and cause safety problems.



ATE ALLTOPELEC

File number:2023011203

Edition number: A5

Day period: 2023-1-12

11.1.3 Overcharge

It is very dangerous that charging with higher voltage than maximum voltage may cause damage to the cell electrical, mechanical safety performance and could lead to heat generation or leakage.

11.1.4 Prohibition of Reverse Charging

Reverse charging is prohibited. The cell shall be connected correctly. The polarity has to be confirmed before wiring. In case of the cell is connected improperly, the cell cannot be charged. Simultaneously, the reverse charging may cause damaging to the cell which may lead to degradation of cell performance and damage the cell safety, and could cause heat generation or leakage.

11.2 Discharging

11.2.1 Limiting conditions of discharging current, voltage and temperature

Discharging must be carried out under the technical conditions specified in this specification. Charging outside the scope of conditions may lead to battery heating, performance degradation or even failure, and cause safety problems.

11.2.2 Over-discharging

It should be noted that the cell would be at an over-discharged state by its self-discharge characteristics in case the cell is not used for long time. In order to prevent over-discharging, the cell shall be charged periodically to maintain between 52.4V and 53.2V.

Over-discharging may causes loss of cell performance, characteristics, or battery functions.

12. Danger warning

- Do not use or store the battery near sources of heat such as a fire or heater.!
- Do not reverse the positive(+) and negative(-) terminals.!
- 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!
- Don't fall, hit or bend the battery. It may cause fire or explosion!
- Never disassemble the battery. It may cause fire!
- To immerge the battery into liquid such as water is strictly prohibited!

13. General Troubleshooting Method

		File number:2023011203
		Edition number: A5
		Day period: 2023-1-12

Failure condition	Solution
The battery string cannot be charged or discharged properly	1) Check whether the line is correctly connected
	2) Check whether the load power is overloaded and start the load in turn
	3) Check whether the battery pack voltage is normal
	4) Check whether the battery connection is loose
	5) Disconnect the load and then switch on
	6) Replace the protection plate
The battery heats up during use	1) The continuous working current is too large
	2) The battery is in poor contact with each other

14. Warranty Card

14.1 Sales Record

User information	User name		Contact number	
	Mailing address and postcode			
	E-mail address			
Sales information	Sales name			
	Contact address			
	Contact number		Postal code	
	Production date		Sale date	
	Dealer's seal			



ATE ALLTOPELEC

File number:2023011203

Edition number: A5

Day period: 2023-1-12

14. 2 Maintenance Record

Maintenance frequency	Maintenance date	Maintenance content	Person in charge	Telephone
The first time				
Second time				
The third time				
Fourth time				
The fifth time				