

# **Lithium-ion Battery Pack**

# Model:ATG 12.8V 120AH

# **User manual**



Version: 3.0



Please comply with all warnings and operating instructions in this manual strictly. Save this manual properly and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

## **Safety Precaution**

1. When Using battery

### Danger of High Voltage:

The high voltage power supply offer the equipment power, wet object contact high voltage power supply directly or indirectly , can cause fatal danger.



Working in high voltage and ac power, be sure to use a special tool instead of individual tools.

# Static - free:

Static electricity would damage veneer on the electrostatic sensitive components, before touching the plug - in, circuit board or chips, be sure to use correct electrostatic prevention measures.

## Disconnect the power supply in operation:

When operate the power supply, you must first cut off power supply, power operation is prohibited.

## Dc short circuit dangerous:

Power system provides dc regulated power supply. Dc short circuit could cause fatal damage to the equipment.

## 2. While Charging

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The temperature range over which the battery can be charged is 0°C to 45°C. Charging the battery at temperatures outside of this range may cause the battery to become hot or to break. Charging the battery outside of this temperature range may also harm the performance of the battery or reduce the battery's life expectancy.

## 3. When Discharging the Battery





Do not discharge the battery using any device except for the specified device. When the battery is used in devices aside from the specified device it may damage the performance of the battery or reduce its life expectancy, and if the device causes an abnormal current to flow, it may cause the battery to become hot and cause serious injury.

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The temperature range over which the battery can be discharged is -20°C to 60°C. Use of the battery outside of this temperature range may damage the performance of the battery or may reduce its life expectancy.

#### 4-1 Parameters of Battery Pack

Model of battery pack	OTLVS12.8V 120AH -1536WH
Nominal voltage	12.8V
Rated capacity	120AH
Rated reserved energy	1536WH
Standard charging current	0.5C (50A)
Maximum continuous charging current	0.5C (50A)
Total charging cut-off voltage	14.6V
Cut-off voltage of charging monomer	3.65V
Standard discharging current	0.5C
Maximum continuous discharging current	1C(100A)
Cut-off voltage of discharging monomer	2.5V
Total discharging cut-off voltage	10V
Charging temperature range	-10℃~50℃
Discharging temperature range	-20°C∼45°C
Dimension (W×D×H)	330*172*215mm
Weight	13.0kg



Compound mode	4 strings 1 parallel	
Storage temperature	<b>-20</b> ℃~45℃	
Differential pressure	Differential pressure at the discharging end (2.5V for monomer) ≤300mV Differential pressure at the charging end (3.65V for monomer) ≤300mV	

#### 4-2Technical Parameters of Battery Management System (BMS-JBD-SP04S020 V1.0)

NO	Description		Specification	Unite	Remarks
1	Discharge	Continue discharge current)	100	А	
		Charge voltage	14.6	V	
2	Charge	Charge current	100	А	
	Over charge	Over charge detect voltage	3.75±0.05	V	
3	protection	over charge protection delay	1	S	
		over charge release voltage	3.55±0.05	V	
		Balance detect Voltage	3.50	V	
4	Balance	Balance current	30±5	mA	
		Over discharge detect	2.2±0.1	V	
	Over discharge 5 protection	Over discharge detect delay	1	S	
5		Over discharge release voltage	2.7±0.1	V	
		Charging over current protection current 1	115	A	Can set as required
	Charging over current protection	Charging over current protection current 2	400	А	
6		Over Charge current detect delay	1	S	Can set as required



		Over Charge current protection release condition		Off load	
		Discharge over current protection current 1	115	А	Can set as required)
	Discharge over current protection	Discharge over current protection current 2	400	А	
7		Over discharge current detect delay	1	S	Can set as required
		Over discharge current protection release condition	Off load		
		Short Circuit protection condition	Short circuit of external load		
8	Short Circuit protection	Short circuit detect delay	250	US	
	•	Short circuit protection release	(Off load)		
	Temp Protect	Charge High Temperature protection degrees	67	°C	
		Charge High Temperature protection release condition degrees	57	°C	
		Charge low Temperature protection degrees	-3	°C	
		Charge Low Temperature protection release condition degrees	7	°C	
		Discharge Temperature protection degrees	72	°C	
9		Discharge Temperature protection release degrees	62	°C	
5		Discharge low Temperature protection degrees	-8	°C	
		Discharge Low Temperature protection release condition degrees	2	°C	
10	Weak Current Switch	No			
11	Inner Resistance	Main Circuit Conduct Inner resistance	<20	mΩ	



		Working current	500	uA	
12		Sleeping current( over-discharge)	0	uA	
13	Working Temp	Temp range	-20~70	°C	
14	Storing Temp	Temp range	-40~80	°C	



#### Cycle life @25°C 1C/1C 2.5V-3.65V 100Ah Cycle life @25°C and 45°C 1.0C/1.0C 2.5V-0Ah 1C/1C cycle without clamp —— 100Ah 1C/1C cycle with clamp 3.65V 102% $\begin{array}{c} 102\%\\ 100\%\\ 98\%\\ 96\%\\ 92\%\\ 92\%\\ 90\%\\ 88\%\\ 86\%\\ 84\%\\ 80\%\\ 78\%\\ 76\%\\ 74\%\\ 72\%\\ 70\%\\ \end{array}$ 100% 25°C Capacity retention (%) 98% **45°**C Capacity retention /% 96% 94% 92% 90% 88% 86% 84% 82% 80% 0 1000 2000 3000 4000 5000 6000 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 0 Cycle number Cycle number

#### The curves of cycle life

#### The curves of charge and discharge





