



History of specification

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1 Scope of application documents/

This product specification only applies to the protection parameters of rechargeable lithium-ion battery products and batteries designed by Dong guan TGPRO New Energy Technology Co., Ltd.

2 The Specification Amendment/

If the raw materials, production processing, production system or battery usage environments & other conditions need to be changed, the amendment side needs provide the written advice to the other side, only the both sides come to agreement, the amendment will be effective.

3 Product or Cell testing conditions/

It is recommended to use newly produced battery pad

4.3 Testing Conditions (Unless Specially Requirements)

Atmosphere Pressure	86~106kPa	86~106kPa
Temperature	20 ± 5	20 ± 5
Relative Humidity	≤ 75%	≤ 75%

5 Model Description

Our company's product model definition rules are as follows:

TG-eBank-xxx□□2					
1	2	3	4	5	6
F L			F L		
Empty			S		
S			S		
PGF			PGF		
PGFS			PGFS		
HYB			HYB		
F L			F		

6 Main specifications

6.1 System Parameter

No	Item	TG-eBank-160F	TG-eBank-180F	TG-eBank-200F	TG-eBank-221F	TG-eBank-241F
1	system energy	160.768KWh	180.864KWh	200.96KWh	221.096KWh	241.152KWh
2	Rated Capacity	314Ah				
3	Output Voltage range	400-584Vdc	450-657Vdc	500-730Vdc	550-803Vdc	600-876Vdc
4	Factory Voltage	512V-528V	576V-594V	640V-660V	704V-726V	768V-792V
5	Recommended Voltage at end of Discharge	≤ 432V	≤ 486V	≤ 540V	≤ 594V	≤ 648V
6	Recommended charging voltage	560V	630V	700V	770V	840V
7	Max Charging Current(Icm)	157A				
8	Limited Charging Voltage(Ucl)	584V	657V	730V	803V	876V
9	Max Discharging current	157A				
10	Discharge Cut-off voltage(Udo)	400V	450V	500V	550V	600V
11	Inverter	Customers purchase on their own				
12	Cooling method	air-cooled air conditioning				
13	Placement environment	Outdoor(Suggest a cool and ventilated place) ()				
14	Size	W1200*D1250*H2050mm (Excluding inverter cover) ()				
15	Weight	1850 ± 100kg	2000 ± 100kg	2150 ± 100kg	2300 ± 100kg	2450 ± 100kg
16	Fire Protection System	Have				
17	protection grade	IP54				
18	Operating temperature ()	charge:0 55 /discharge -20 50 0 55 / -20 50				
19	Relative humidity	0 ~95% non-condensing 0 ~95%				
20	Operating altitude	3000m				

6.3 Specification for Single Cluster Battery Management System

6.3.1 BMS function introduction,BMS

1 :BMS is designed for high-voltage energy storage series lithium batteries
BMS

2 The BMS have all functions which are :
BMS

.1 overcharge detection function

.2 over discharge detection function

.3 over current detection function

.4 short detection function

.5 Temperature detection function

.6 balance function

.7 communicate function

.8 Alarm function

.9 Total capacity function

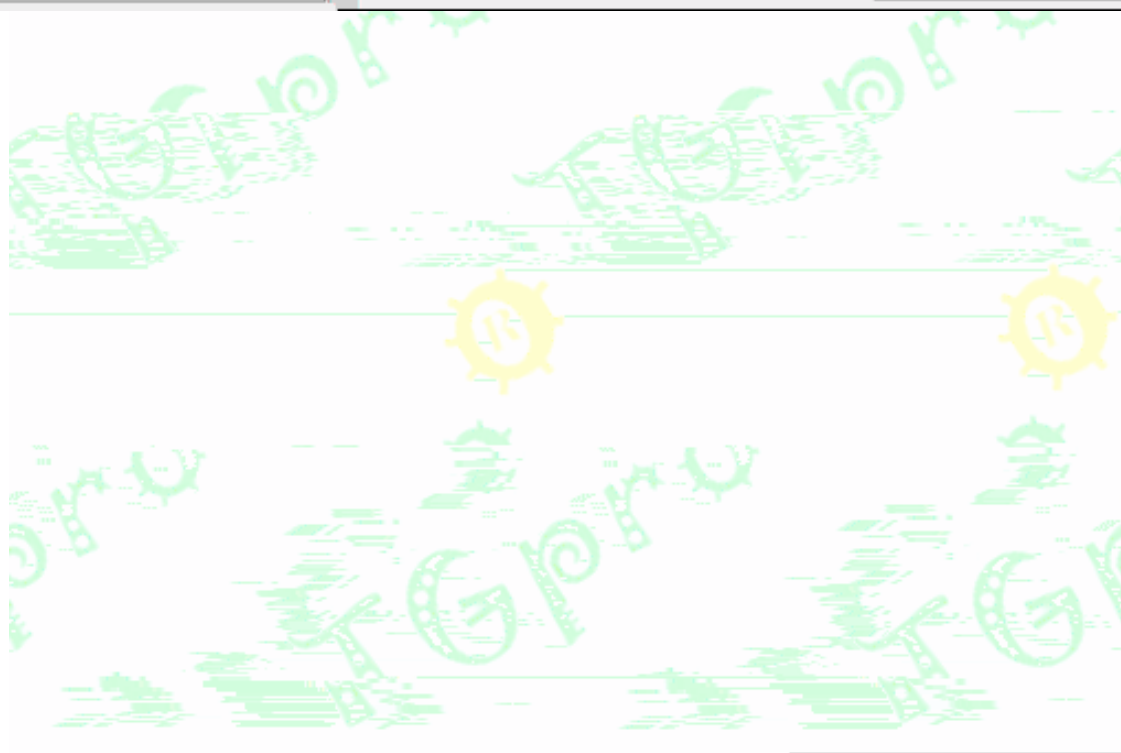
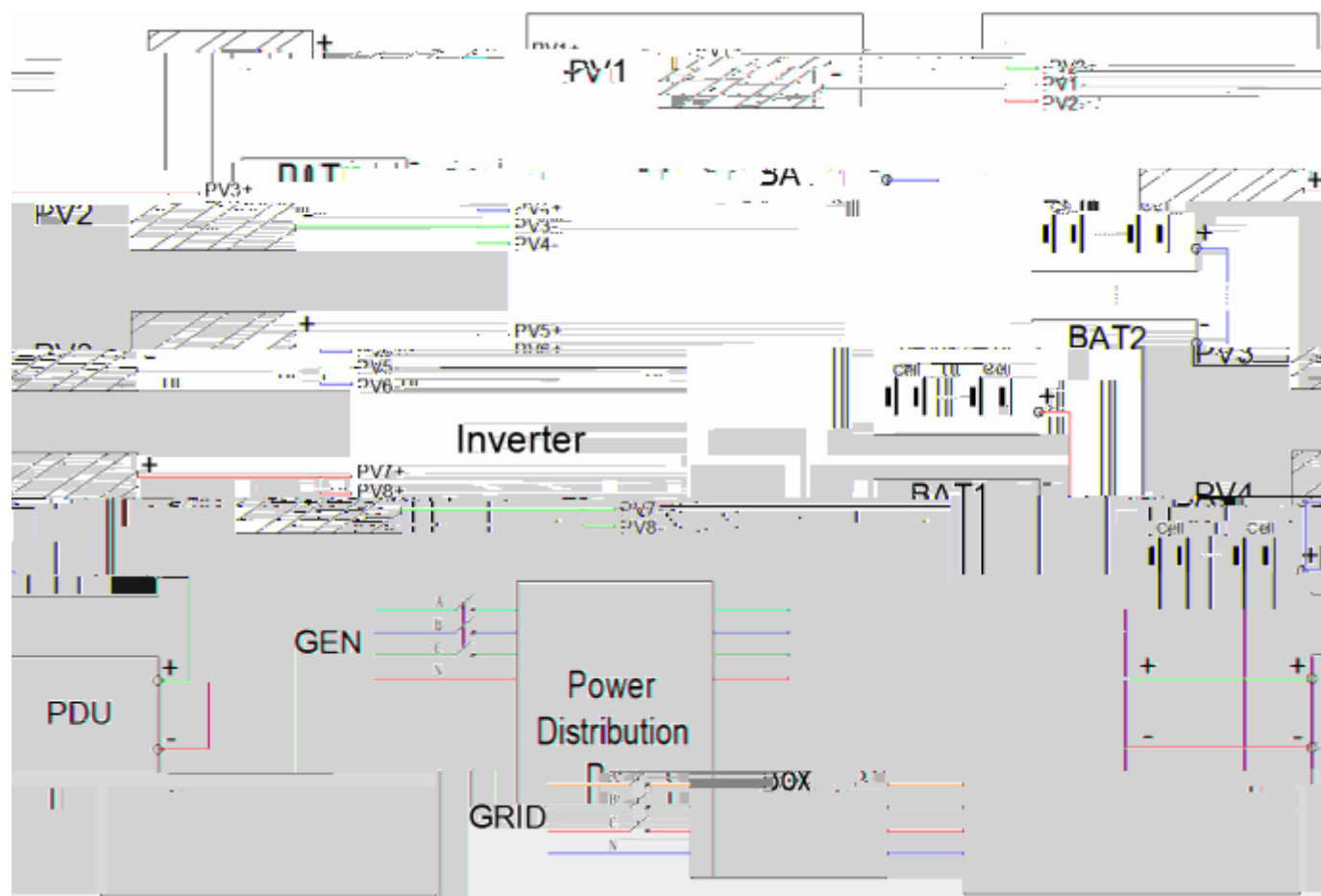
.10 Storage history function

6.3.2 BMS Protect parameter

Items	Details	General Parameter
Cell overcharge Protection	Overcharge detection voltage	$3.65 \pm 0.025V$
	Overcharge detection delay time	Typical:1.0s
	Overcharge release voltage	$3.4 \pm 0.05V$
Cell over-discharge protection	Over-discharge detection voltage	$2.7 \pm 0.5V$
	Over-discharge detection delay time	Typical:1.0s
	Over-discharge release voltage	$3.1 \pm 0.1V$ or charge release
Over-current Protection	discharge Over-current protection current1 1	162A
	discharge Over-current detection delay time 1 1	1S
	discharge Over-current protection current 2 2	167A
	discharge Over-current detection delay time 2 2	$\leq 200m \pm 50ms$
	Charge Over-current protection current	162A
	Protection condition	Load short
	Detection delay time	$\leq 30ms$
	Protection release condition	Charging release
Temperature(T) protection T	Charge high T protection T	55 ± 3
	Charge high T recover T	47 ± 4
	Discharge high T protection T	60 ± 3
	Discharge high T recover T	50 ± 4

	Charge low T protection T	0 ± 3
	Charge low T recover T	5 ± 4
	Discharge low T protection T	-20 ± 3
	Discharge low T recover T	-10 ± 4
Balance	Balance threshold voltage	3.4V
Communication	It has CAN and RS485 ,RS232 standard communication interface, it real-time monitoring the capacity of battery bank, the voltage, current,environment temperature, and charging/discharging current, RS485,RS232,Baud rate:9600Kb/S,CAN common Baud rate:500K/S, CAN RS485 ґ RS232 ґ ґ ґ RS485 ґ RS232 9600Kb/S CAN 500K/S	
Alarm	It has over-temperature, over charge, under-voltage, over-current, short circuit alarm Function. ґ ґ ґ ґ III	

6.4 System schematic diagram





8 Storage and Others

If stored for a long time(don't used,exceed three months), the cell and pack should be stored in drying and cooling place. The PACK is to be stored in a condition that the temperature of 23 ± 2 and the humidity Of 45%- 75%. Long-term use of unused batteries to recharge every 3 monthsIIIEnsure that the battery voltage is within the above rangeIII

III, 3 IIIPACK III 23 ± 2 III 45%- 75% III

Appendix

Li-ion battery operation instructions and precautions

Preface

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

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Note (1)

The customer is requested to contact TGPRO New Energy Technology Co., Ltd.. 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.

III

Note (2)

TGPRO New Energy Technology Co., Ltd. will take no responsibility for any accident when the cell is used under other conditions than those described in this Document.

III

Note (3)

TGPRO New Energy Technology Co., Ltd. will inform, in a written form, the customer of improvement(s) regarding proper use and handling of the cell, if it is deemed necessary.

III

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 Cause personal injury III

III

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If the electrolyte enters the eyes after the battery leaks, do not wipe it, rinse with clean water, and seek medical help immediately.

III

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 TGPRO.

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.

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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.

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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.

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—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.

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