US2000B Plus Charge and Discharge Recommendation

1. Battery Parameter

Nominal capacity Min.: 49Ah O.1C discharge to 44.5V or to BMS protection. Nominal Charging O.2C CCCV(53.2V) charging to 0.01C Recommended discharge current ≥15s enter protection mode, after 1min or acquire charge current then self-release from protection mode.	Item	Parameter	arameter Remark	
Nominal capacity Min.: 49Ah O.1C discharge to 44.5V or to BMS protection. Nominal Charging O.2C CCCV(53.2V) charging to 0.01C Recommended discharge current ≥15s enter protection mode, after 1min or acquire charge current then self-release from protection mode. ≥180 ± 20% ms enter protection mode, after 1min or acquire charge current then self-release from protection mode, after 1min or acquire charge current then self-release from protection mode, after 1min or acquire charge current then self-release from protection mode. 3 times	Nominal voltage	48V 2P15S, LFP		
Min.: 49Ah protection. Nominal Charging 0.2C CCCV(53.2V) charging to 0.01C Recommended discharge current ≥15s enter protection mode, after 1min or acquire charge current then self-release from protection mode. ≥180±20% ms enter protection mode, afte 1min or acquire charge current then self-release from protection mode, afte 1min or acquire charge current then self-release from protection mode, afte 1min or acquire charge current then self-release from protection mode. 3 times		Standard: 50Ah	Nominal charge and shelve for 0.5-1h,Then	
Protection.	Nominal capacity	Min · 49Ah	0.1C discharge to 44.5V or to BMS	
Recommended discharge current ≥15s enter protection mode, after 1min or acquire charge current then self-release from protection mode. ≥180±20% ms enter protection mode, afte 1min or acquire charge current then self-release from protection mode, afte 1min or acquire charge current then self-release from protection mode. 3 times		Willi 45/All	protection.	
discharge current ≥15s enter protection mode, after 1min or acquire charge current then self-release from protection mode. ≥180±20% ms enter protection mode, afte 1min or acquire charge current then self-release from protection mode, afte 1min or acquire charge current then self-release from protection mode. 3 times	Nominal Charging	0.2C CCCV(53.2V) charging to 0.01C		
discharge current ≥15s enter protection mode, after 1min or acquire charge current then self-release from protection mode. ≥180 ± 20% ms enter protection mode, afte 1min or acquire charge current then self-release from protection mode, afte 1min or acquire charge current then self-release from protection mode. 3 times		25A		
acquire charge current then self-release from protection mode. ≥180±20% ms enter protection mode, afte 1min or acquire charge current then self-release from protection mode, 3 times	discharge current	2071		
from protection mode. ≥180 ± 20% ms enter protection mode, afte Peak discharge current 1min or acquire charge current then self-release from protection mode, 3 times			≥15s enter protection mode, after 1min or	
Peak discharge current ≥180±20% ms enter protection mode, afte 1min or acquire charge current then self-release from protection mode. 3 times		100A±2%	acquire charge current then self-release	
Peak discharge current 1min or acquire charge current then self-release from protection mode, 3 times			from protection mode.	
self-release from protection mode, 3 times			≥180±20% ms enter protection mode, after	
self-release from protection mode. 3 times	Peak discharge current		1min or acquire charge current then	
		200A + 10%	self-release from protection mode. 3 times	
continuous enter into protection mode will		2007 = 1070	continuous enter into protection mode will	
lock the system, unless acquire charge			lock the system, unless acquire charge	
current or restart will revive.			current or restart will revive.	
≥1.6±20% ms enter protection mode, afte		400A±10%	≥1. 6±20% ms enter protection mode, after	
1min or acquire charge current then			1min or acquire charge current then	
Short circuit protection 400A±10% self-release from protection mode. 3 times	Short circuit protection		self-release from protection mode. 3 times	
continuous enter into protection mode will	Short circuit protection		continuous enter into protection mode will	
lock the system, unless acquire charge			lock the system, unless acquire charge	
current or restart will revive.			current or restart will revive.	
Recommended charge 25A	Recommended charge	251		
current	current	2011		
≥15s enter protection mode, after 1min or			≥15s enter protection mode, after 1min or	
100A±2% acquire discharge current then self-release		100A±2%	acquire discharge current then self-release	
from protection mode.			from protection mode.	
Peak charge current ≥600 ± 20% ms enter protection mode, afte	Deak charge current		≥600±20% ms enter protection mode, after	
1min or acquire charge current then	i eak chaige cullent	200A±10%	1min or acquire charge current then	
200A±10% self-release from protection mode. 3 times			self-release from protection mode. 3 times	
continuous enter into protection mode will			continuous enter into protection mode will	
lock the system, unless acquire charge			lock the system, unless acquire charge	



No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China

		current or restart will revive.
Internal resistance	<20mO	
(exclude BMS)	201112	
Charge voltage	54±0.1V	Suggest voltage: 53.2±0.5V
Discharge voltage	44.5±0.1V	
Morling to pay and the	Charge	-10~60℃
Working temperature	Discharge	-10~60℃
Working humidity	5%~95%	No condensation, working normally
Shelf temperature	-25℃~65℃	For long term storage suggest -20℃~40℃

2. Activation function (in case of over discharge)

Activation condition	Activation description
	Inverter shall provide a floating charge
Inverter monitored that the terminal	voltage of 48V no less than 1s to active the
voltage of battery is 0V.	battery

3. Charge

Force charge:

Force charge start condition	Force charge current	Force charge stop condition
SOC<5% or Voltage<46.2V	Refer to MCCV (<0.5C)	SOC=10% AND
		Voltage=47.3V

Battery charge priority for on-grid system: PV should charge battery first, in case of insufficient PV then use grid for battery charging, additional power for load supply.

Battery charge priority for off-grid system: PV should charge battery first, in case of insufficient PV then inverter should cut-off from battery.

4. Discharge

Discharge current

(1) Discharge protection (DOD 90%):

Battery stop to supply power for load (MCCV send 0 for discharge current via protocol)

(2) Inverter cut-off from battery, for off-grid application (no PV and Grid)

Inverter cut-off from battery (Inverter use Relay to cut-off from battery)

SOC<5% or Battery voltage<46.2V



5. MCCV/MDCV Logic table

High voltage = HV Low voltage = LV High temperature = HT Low temperature = LT Over voltage = OV

	Status	Battery	Total	Charge	Discharge
	Otatao	cell	Voltage	current	current
		OV	OV	0	
		HV3		0.02C	
	Charge	HV2		0.1C	
٧			HV1	0.2C	
		Normal	Normal	0.5C	
		LV1	LV1	0.5C	
		LV2	LV2	0.1C	
		LV2	LV2		0
	Discharge	LV1	LV1		0
		Normal	Normal		0.5C
		OV	OV		0.5C

	Battery	Total
	cell(mv)	(mv)
HV3 threshold	3550	
value	3550	
HV3 release value	3520	
HV2 threshold	2500	
value	3500	
HV2 release value	3470	
HV1 threshold		51000
value		51000
HV1 release value		50500
OV threshold	2000	E3E00
value	3600	53500
OV release value	3570	53000
LV1 threshold	3100	47000
value	3100	47000
LV1 release value	3200	48500
LV2 threshold	2900	44500
value	2900	44500
LV2 release value	3000	46000

	Status	Dattery cell temp	Charge	Discharge
	Status	Battery cell temp.	current	current
		HT 2	0.05C	0
_		HT 1	0.2C	0.2C
T	Charge ,	Normal	0.5C	0.5C
	/ Discharge	LT 1	0.2C	0.5C
	Discharge	LT 2	0.05C	0.1C
		LT 3	0.05C	0

	Threshold	Release
	value	value
HT 2	50	45
HT 1	40	35
LT 1	10	12
LT 2	0	2
LT 3	-10	-8

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Pylon Technologies Co., Ltd.

No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China

	Status SOC		Charge	Discharge
	Status	SOC	current	current
	S Charge	High	0.2C	
		Normal	0.5C	
С	Disabassa	Normal		0.5C
	Discharge	Low		0

	Threshold value(%)
High	90
Low	10