

## US2000B Plus Charge and Discharge Recommendation

### 1. Battery Parameter

Item	Parameter	Remark
Nominal voltage	48V	2P15S, LFP
Nominal capacity	Standard: 50Ah	Nominal charge and shelve for 0.5-1h,Then 0.1C discharge to 44.5V or to BMS protection.
	Min.: 49Ah	
Nominal Charging	0.2C CCCV(53.2V) charging to 0.01C	
Recommended discharge current	25A	
Peak discharge current	100A±2%	≥15s enter protection mode, after 1min or acquire charge current then self-release from protection mode.
	200A±10%	≥180±20% ms enter protection mode, after 1min or acquire charge current then self-release from protection mode. 3 times continuous enter into protection mode will lock the system, unless acquire charge current or restart will revive.
Short circuit protection	400A±10%	≥1.6±20% ms enter protection mode, after 1min or acquire charge current then self-release from protection mode. 3 times continuous enter into protection mode will lock the system, unless acquire charge current or restart will revive.
Recommended charge current	25A	
Peak charge current	100A±2%	≥15s enter protection mode, after 1min or acquire discharge current then self-release from protection mode.
	200A±10%	≥600±20% ms enter protection mode, after 1min or acquire charge current then self-release from protection mode. 3 times continuous enter into protection mode will lock the system, unless acquire charge

		current or restart will revive.
Internal resistance (exclude BMS)	<20mΩ	
Charge voltage	54±0.1V	Suggest voltage: 53.2±0.5V
Discharge voltage	44.5±0.1V	
Working temperature	Charge	-10~60℃
	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 monitored that the terminal voltage of battery is 0V.	Inverter shall provide a floating charge voltage of 48V no less than 1s to active the 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)



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SOC=10% or Battery voltage <47.3V

(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

Over voltage = OV

High temperature = HT

Low temperature = LT

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

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

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

	Threshold value	Release 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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S O C	Status	SOC	Charge current	Discharge current		Threshold value(%)
	Charge	High	0.2C		High	90
		Normal	0.5C		Low	10
	Discharge	Normal		0.5C		
		Low		0		