

SPECIFICATION

Product Name	AP19
Product description	PACK,2PORTS,15S2P, 20or30AH,15/50A, UPS,2U
Use Cell	
Document Number	AP19-X-140516-V01-SPE.doc
Document Revision	V01
Date	2014-05-16

Bmtpow Ltd.	
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Signature	

1. Introduction

AP19 is a 48V, 20 or 30Ah rechargeable LiFePO₄ backup battery pack to suit for Telecom UPS application, it is designed & manufactured by BMTPow Ltd.

AP19 consist of the state of the art battery gas gauge controller and protection IC (BM3398). BM3398 is used to monitor the current, individual cell voltages, capacity, temperature and other critical battery parameters, generates control signals that are required by the Battery Management System (BMS).

Various hardware and software protection features are included to ensure the battery safety.



Special Remark: The battery configuration is 15S2P, which provided us a 48V, 20 or 30Ah (LiFePO₄ battery cell) battery pack. A 2U rack mount type chassis is adopted and our own developed PCM (L29A) is used.

2. Features

- ✓ LiFePO₄ battery pack installed inside
- ✓ Support 15A limited current charging
- ✓ Support cascade connection
- ✓ Pack status reporting via RS232 interface (max. speed up to 19200)
- ✓ Two RS485 channels
- ✓ OLED screen display
- ✓ 1 dry contact point
- ✓ LED display and Buzzer alarm
- ✓ Real Time Clock (RTC) recording function
- ✓ Full Charge Capacity (FCC) self-learning
- ✓ High precision voltage ($\pm 25\text{mV}$ Cell @2V~4.2V, 25 °C) And current ($\pm 3\%$ @50A) sensing
- ✓ 8 temperature sensing points ($\pm 3^\circ\text{C}$ @25°C)
- ✓ Hardware & Software protection: over/under – voltage, temperature, over current and short circuit
- ✓ Smart cell balancing management
- ✓ One quick button for machine on and off

3. Product Specification

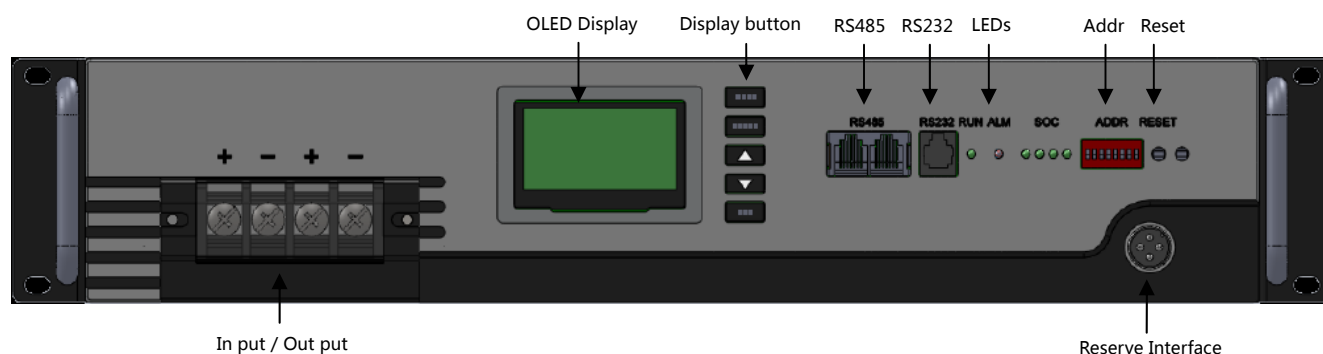
Description	Typical Value	Unit
Maximum charge voltage	55	V
Discharge cut-off voltage	37.5	V
The maximum charging current limit	15	A
Maximum continuous discharge current	50	A
Operating temperature	-20~60	°C
Operating humidity	<75	%RH
Storage temperature	0~45	°C
Storage humidity	<65	%RH
Initial internal impedance @1KHz	≤200	mΩ
Cycle life (0.5C charge and 0.5C discharge for 500 cycles at 25°C, retention capacity should ≥60%)		Cycle
Dimension	482*88*500	mm



Weight		kg
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4. Electrical Characteristics @25°C

Description	Typical Value	Accuracy	Unit
Rated voltage	48	N/A	V
Rated capacity	30000 (example)	N/A	mAH
Minimum capacity	28500 (example)	N/A	mAH
Rated charge voltage	54.8	N/A	V
Rated charge current	15	N/A	A
Rated discharge current	30	N/A	A
Over charge voltage protection (cell)	3650	±25	mV
Over charge protection delay	5	±1	Sec.
Over discharge voltage protection (cell)	2500	±25	mV
Over discharge protection delay	5	±1	Sec.
Over charge current protection	16	±1	A
Over charge current protection delay	5	±1	Sec.
Over discharge current protection	52	±1	A
Over discharge current protection delay	5	±1	Sec.
Cell balancing start voltage	3300	±25	mV
Cell balancing start window	60	±25	mV
Cell balancing current	200 (Max)	±25	mA
Charge temperature protection (High)	45	±3	°C
Charge temperature protection (Low)	-10	±3	°C
Discharge temperature protection (High)	65	±3	°C
Discharge temperature protection (Low)	-20	±3	°C
Current consumption in active mode	30 (Max)	N/A	mA
Current consumption in power down mode	20 (Max)	N/A	µA

5. Connection Diagram



Interface	Description
RS485 Interface  Pin1	Pin1/8: TDB(-) Pin2/7: TDA(+) Pin3/6: RS485 Ground Pin4/5: N/A
RS232 Interface  Pin1	Pin1: RS232 Ground Pin2: TX Pin3: RX Pin4: RS232 Ground

Interface	Description
+	Positive terminal during charging or discharging
-	Negative terminal during charging or discharging

6. Display

There are five buttons in the right hand side of the OLED screen, their operation are as follow:

1. Press “MENU” once, wake up the machine and a welcoming message will be displayed
2. Press “MENU” once again will go into the main menu, there are totally six selection inside the main menu

SYS_Info : Display the model no, manufacturer, serial no, date of manufacturing, design voltage, design capacity and Full charge capacity

Status : Display the machine status, current pack voltage, residual pack capacity (in Ah and %), no. of cycle, recent current draw

Voltages : Display the individual cell voltage

TempDate : Display the pack temperature (5 temperature sensing points defaulted)

EventLog : Display all the protection counters, including over and under voltage protection, short circuit protection, over-current (charge and discharge) protection, under voltage protection

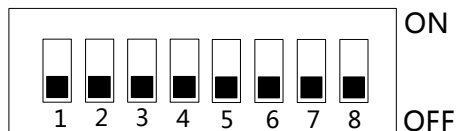
Version : Display the firmware version

3. Use “↑” , “↓” up & down arrow to move the cursor; Press “Enter” to go into the option while press

“Esc” to exit from the option

7. Hardware address

If there is no parallel connection during operation, please set the “address” as either all off or all on. If any connection is present, please follow the table below for the corresponding “address” setting, and via RS485 to link up the machines. The address code is following the binary arithmetic system, maximum number of address code supported by a “8” -digit counter is 254



addr	switch								depict
	#1	#2	#3	#4	#5	#6	#7	#8	
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NC
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Host Pack1
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Slave Pack2
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	Slave Pack3
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	Slave Pack4
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	Slave Pack5
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	Slave Pack6
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	Slave Pack7
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	Slave Pack8
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	Slave Pack9
And so on...									
254	ON	ON	ON	ON	ON	ON	ON	OFF	Slave Pack254
255	ON	ON	ON	ON	ON	ON	ON	ON	NC

8. Revision History

Date	Revision	Detail	Document Name
2014-05-16	01	Initial release	AP19-X-140516-V01-SPE.doc

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