

# HP-4820 48V20Ah



Techplus delivers safe lithium iron phosphate battery solutions for Telecom Base Application.

## Overview

The HP-4820 48V20Ah back-up lithium iron phosphate battery system is developed for backup of Telecom equipment. Under normal condition, grid AC power supply to rectifier module and the Telecom loads and charge battery pack; When the AC power fail, rectifier module stop power supply, the battery serves for Telecom equipment, to ensure the Telecom equipment runs normally; when the AC power is switched on again, power rectifier module for Telecom equipment recover to while charge the battery.

## Features

- ¾ RS485 communication output for monitoring
- ¾ Built-in BMS with Charging current limitation
- ¾ Built-in automatic protection for over-charge, over-discharge and over-temperature conditions
- ¾ State of charge and state of health indication
- ¾ Built-in battery control for efficient operation
- ¾ Internal cell balancing
- ¾ Compatible with standard Telecom rectifiers
- ¾ Maintenance free

Specifications		HP-4820 48V20Ah
Voltage		48 V
Nominal Capacity (25°C , 0.5C)		20Ah
Weight (Approximate)		13.6 ± 0.2 Kg
Energy	Normal energy (25°C , 0.5C)	1000Wh
	Volumetric energy density	90Wh/L
	Gravimetric energy density	73Wh/kg
Dimensions(mm)	Width*Depth* Height	442mm*285mm*88mm
Standard Discharge 25°C	Max.cont.current	20 A
	Max.30S pulse current	23 A
	Cut-off voltage	42 V
Standard charge	Charge Voltage	54V
	Charging current limitation	Max.5A
	Recommended charging current and time	5A for 4.5 hours
Round trip efficiency(%)		> 98%
Calendar life	25°C	> 10 years
Cycle life( 25°C,0.5C)		80% DOD 4000 cycles
Operating temperature range		-30°C~60°C
Recommended Storage temperature range		-30°C~70°C

## BMS Parameters.

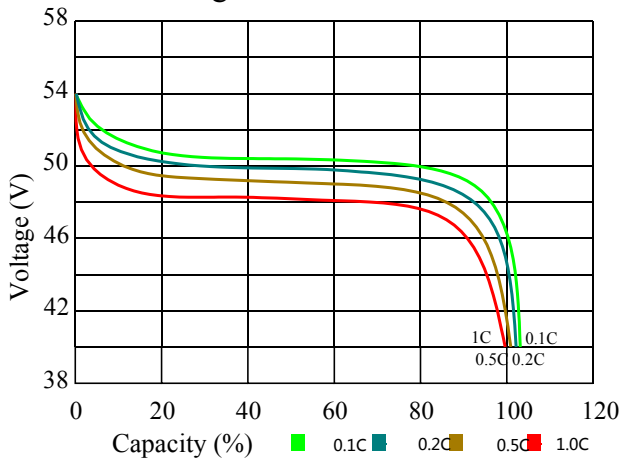
NO.	Type		Function	Setting value		Remarks
				HP-4820	48V20Ah	
1	Voltage	Charge	Cell Voltage Protection	3.80V Warning / 3.90V Protection		Recover at 3.6V
2			Total Voltage Protection	56.0V Warning / 57.0V Protection		Recover at 54.0V
3		Discharge	Cell Voltage Protection	2.3V Warning / 2.0V Protection		Recover at 3.1V
4			Total Voltage Protection	43.2V Warning / 42V Protection		Recover at 46.5V
5	Current	charge	Charging current limitation	5A		
6		Discharge	Normal	$\leq 20A$		
7			Over Current Protection	$\geq 23A$		Delay 30S ,recovery in every 30S
8			Short Circuit Protection	$\geq 200A$		Delay 400uS
9	Temp	Cell Temp 1	Low temp protection	Charging $< -15^{\circ}C$ Discharging $< -30^{\circ}C$		Delay 1~2S
10		Cell Temp 2	High temp protection	Charging $\geq 65^{\circ}C$ Discharging $\geq 70^{\circ}C$		Delay 1~2S
11		PCB	Range	$\geq 95^{\circ}C$		Recovery at 75°C

## Battery Status.

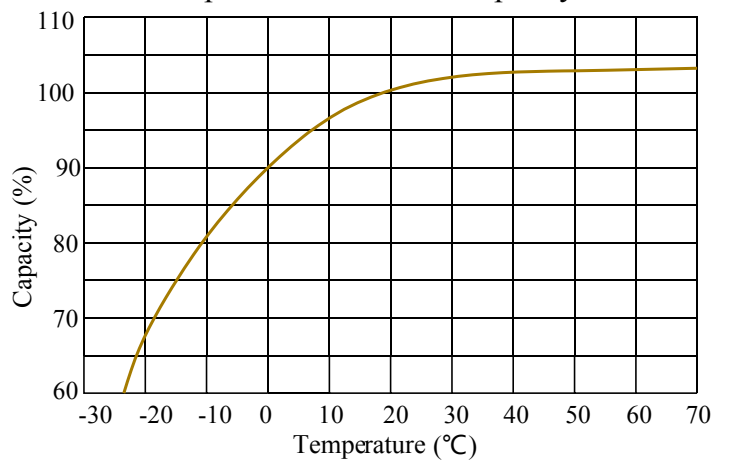
1. Stop/Transport Mode. In working mode, press "START/STOP" button for 1~3 S, battery will go to STOP mode with low self-discharge. In STOP mode, charging MOS and discharging MOS are open, battery cannot charge, discharge or communicate.
2. Working Mode. In STOP mode, press "START/STOP" button for 1~3 S, battery will go to working mode. In working mode, BMS will monitor battery voltage, current, and temp, and RS485 is available, charging MOS and discharging MOS are closed. Battery will operate as the settings.
3. Sleep Mode. In working mode, if there is no charging or discharging current or RS485 communication, and battery voltage is lower than 51.0V, battery will go to sleep mode. In sleep mode, BMS will check the current and RS485 in every 4 S, if there is charging or discharging current or RS485 communication, battery will turn to working mode.
4. Deep Sleep mode. If there is low voltage protection, and no charger connect, battery will go to deep sleep mode in 60S. In this mode, battery cannot discharge or communicate, only connect charger or press "START/STOP" button can wake up the battery. The frequency of charger detection is 60S.
5. Error Mode. In working mode, if there is: ①.Battery cells,  $\Delta U > 1.5V$ , or ②.Any cell voltage  $> 4.0V$  or  $< 1.0V$ , or ③. Battery temp is  $< -30^{\circ}C$  or  $+100^{\circ}C$ . BMS will go to error mode, ALM will bright and other LED will shut down, and go to STOP mode. Need to make troubleshoot.

## Performance Curve.

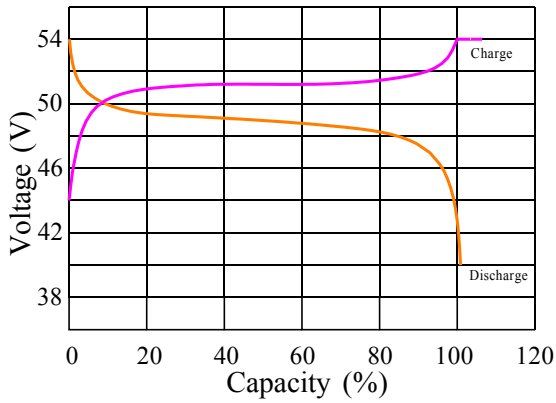
### Discharge Performance at 25°C



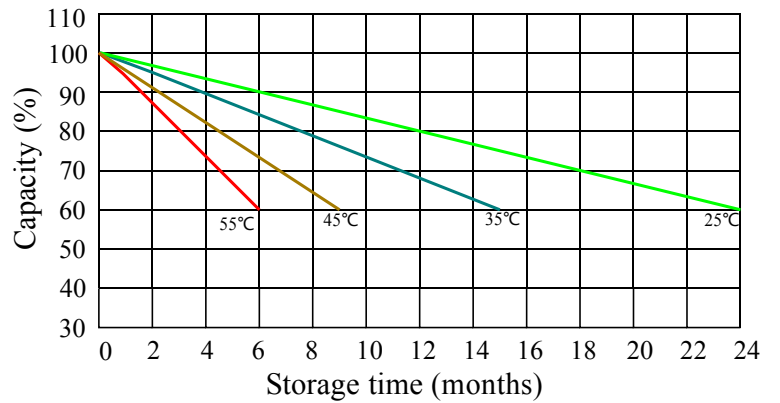
### Temperature effects on capacity at 0.5C



### Charge and Discharge at 25°C, 0.5C



### Self-discharge at different temperature



### Cycle life with DOD at 25°C, 0.5C

