Data sheet GYFP4850T

Product Introduction

GYFP4850T Lithium battery is a High-tech product independently developed by Coslight(COSPOWERS), The battery is small in size and light in weight, and it supports 19-inch or 23-inch rack installation, It has a long service life and supports fast charging. It adopts advanced intelligent BMS with alarm and protection functions such as overcharge, over discharge, over current, temperature, etc., and historical data storage, charging current limiting. The product has prominent advantages in the field of communication backup power supply in specific occasions.

Coslight GYFP4850T outside appearance

Product Characteristic

- Cell temperature sensor is firmly fixed by welding/ screw/glue
- Internal Power cable and signal cable be firmly fixed by cable tie or fixed points. Each cable be marked
- Number of batteries can be connected in parallel: 16 batteries with discharge capacity ≥ n*Crt(Ah) and discharge current n*0.2*Crt(A) (n - number of batteries in parrallel)
- In the front cover:
  - I/O Switch
  - RS485/RJ45 Connection
  - Dry contact
  - SOC indicator by LED
  - RS485 ID address
  - Reset button
- Integral protection: IP20
- Internal Resistance when pack is fully charge: ⩽ 30mΩ
- Power terminal type: Fit with cable lug 8 – with protection cap
- Deviation when discharge in parallel: <0.2Crt

Cell Characteristic

- All Cells in one pack are produced by Coslight Difference in size and weight: ≤3%
- Type of cells: Prismatic (with metal cover)
- The difference among the max capacity value, min capacity value and mean value of all cells in a battery pack: ±1%
- The difference among the max internal resistant value, min internal resistant value and mean value of all cells in a battery pack when fully charged: ±15%
- The deviation of open circuit voltage between maximum and minimum cell when battery pack is fully charged: ⩽ 0.05V
- The deviation of voltage between maximum and minimum cell when battery pack is fully discharged at 0.2 Crt mode ,100% DOD: ⩽ 0.3V
- Cell temperature rise during 5 continuous cycles at 0.5Crt, 50°C: ⩽ 20°C
- Cells be firmly connected to each other by laser welding.

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Specs & Parameters

PARAMETER		
	Model name	GYFP4850T
	Anode Material	LFP
	Cell Model	FP31136170A
	Cell Combination	1P15S (15 cells)
	Cell Manufacturer	Coslight（COSPOWERS）
	Cell Nominal Voltage	3.2V
	Rated Capacity	≥50Ah
	Battery Energy Density	≥ 80Wh/kg.
	Width × Depth × Height	440mm×390mm×130mm (± 2mm)
	Weight	23kg±1kg
	Nominal working voltage	48V
	Nominal Discharge Energy	2400W
	Operating Voltage Range	43.2V-54V
	Standard Charge Current	0.5C
	Charge Voltage	54V
	Max CH/DCH current	50A/50A (Charging current limit was 10±1A)
	Other Function	Limiter; Data logger; Cell balancing, etc...
	Design life	Over 10 Years (at normal working condition)
	Operation Environment	Temperature：0-60℃ Humidity： 5 ÷ 95%.
		Discharge：-20-60℃
		Storage: 0-40℃
	Communication protocol	Modbus RTU - RS485
	Protection Class	IP20
	Reset button	Have
	SOC indicator	By LED
	Round Trip Efficiency	≥ 95% (0.2C CH/DCH current)
	Charging mode	CC/CV
	Self-discharge rate@25℃	< 3% （30 days Storage）
	Warning via Dry contact	Under Voltage (pack/cell); Over Dch/Ch current Over Temperature; Pack Shutdown Short circuit; Reverse polarity; etc...

Specs & Parameters

	BMS protect when	Under/Over Voltage; Over Dch/Ch current Over Temperature; Short circuit; Reverse polarity;...
	Coslight battery can work normally with DC System of Vertiv (Emerson), Huawei (Agisson), ZTE, Eltek, Delta, DPC,…CC-CV charging mode Recommended parameter for DC Cabinet: Charge voltage: 54 V; Battery Current limit: 0.5C Battery Voltage at 80% DOD for DC low voltage: 47.5V Battery Voltage at 90-95% DOD: for LLVD: 46.5V Battery Voltage at 95-100%DOD: for BLVD: 43.2V	

Cycle vs Temp vs DoD

Battery Model	GYFP4850T						
Block voltage	48V						
Battery Capacity	50Ah						
Retension capacity	80%						
Rate of discharging	0.5C						
Rate of Charging	0.5C						
Temp DOD	25℃	30℃	35℃	40℃	45℃	50℃	55℃
10.00%	24500	21000	17500	14000	11900		
20.00%	13100	11200	9300	7500	6300		
30.00%	9300	8000	6600	5300	4500		
40.00%	7400	6300	5300	4200	3600		
50.00%	5900	5100	4200	3400	2800		
60.00%	5200	4500	3700	3000	2500		
70.00%	4500	3800	3200	2500	2300		
80.00%	4100	3500	2900	2300	2200		
90.00%	3800	3300	2700	2200	1800		
100.00%	3500	3000	2500	2000	1700		

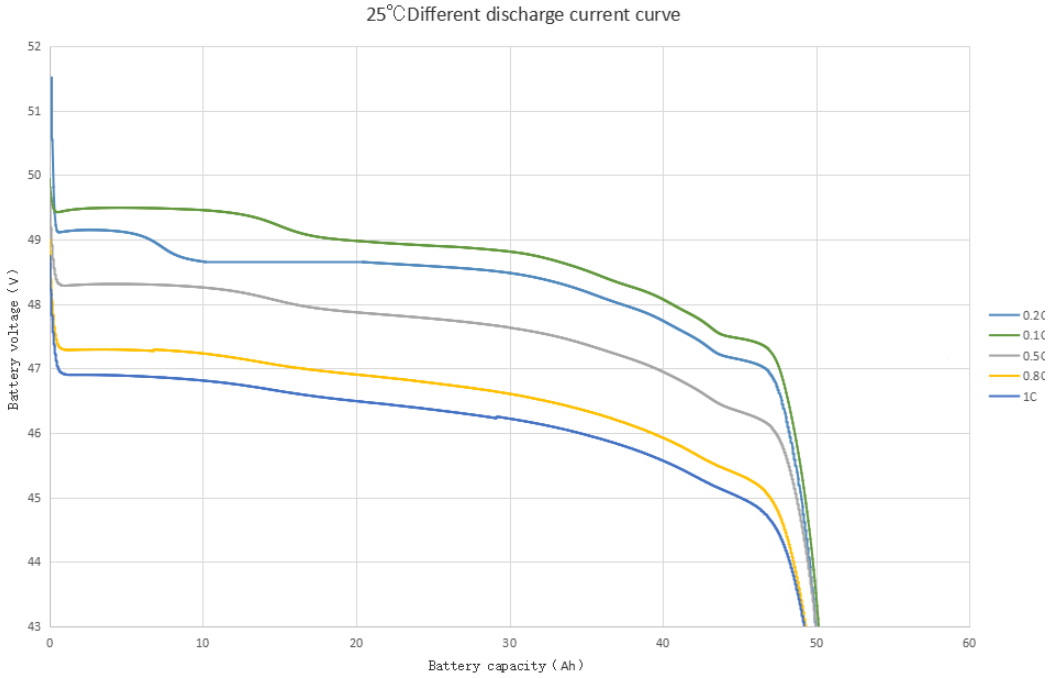

Figure 1 Table of discharge voltage with different discharge rate:

Battery Management System

Measurement and monitoring function:

- Display voltage of battery on BMS software:Resolution volatage for cell: ≤ 1mV ; Resolution voltage for pack: ≤ 10mV
- Measure and monitor the voltage of each cell and battery pack:Error: ≤ 0.5 %
- Measure and monitor the current of battery pack:Error: ≤ 2%
- Measure and monitor the temperature of cells, BMS and working environment temperature of battery :Error: ≤ 3 degC
- Measure and monitor the State of Charge (SOC):Error ≤ 5%
- Measure and monitor the State of Health (SOH):Error: ≤ 10%
- Measure and store the accumulated discharge capacity (Ah) or energy (Wh) in whole battery life: Error: ≤ 5%
- Count the number of discharge cycles: The algorithm:

80% DOD charging cycle times: check the battery pack charging overvoltage protection or single cell overvoltage protection, and record once 80% DOD charge cycle times;

80% DOD discharge cycle times: detect the under voltage protection of battery pack or single cell and record once 80% DOD discharge cycle times

Data storage and communication function:

- Connect to computer through monitoring software and dedicated cable
- Monitor all parameters of battery: Voltage of each module, each cell, current, temperature of cell, BMS, environment, SOC, SOH, cycle count, the accumulated discharge capacity (Ah) or energy (Wh)
- Monitor battery status, alarms, protection
- Display default parameters of manufacturer when connect to BMS software
- Connect to 1 battery to get instantaneous data of all other batteries module in the string: Can take data of ≥ 16 batteries
- Record history events of battery (alarm, protect funtions):≥ 400 events and data of events can be exported by the 01 BMS software