Application Cases

Project Name: China Huadian Corporation (CHD) Tibet renewable energy project
Using Battery: 7347 pcs FCP–1000 battery

Project Name: Yokohama, Japan, container storage system demonstration project
Using battery: FCP-1000

Project Name: 150KW grid–connected energy storage projects of M&S Logistics Park
Using Battery: 572 pcs FCP–1000 battery

Project Name:Key research project of China Southern Power Grid
Using Battery: 408 pcs FCP–500 battery

圣阳电源 SACRED SUN

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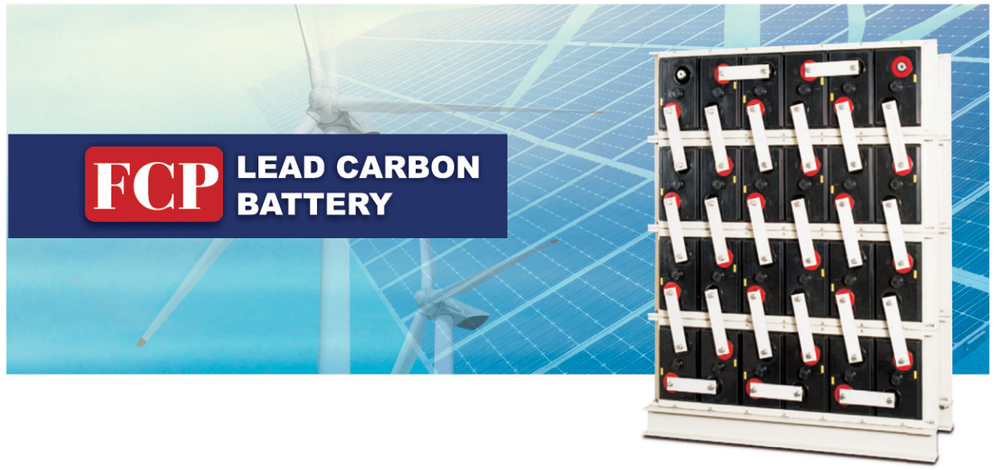

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Application

Distributed generation

Micro-grid power plant

New energy access

Smart grid

Product Features

- **The technology coming from Furukawa**
  Introduction of Japanese Furukawa battery company advanced lead carbon technology and product design and manufacturing experience, produce high performance AGM VRLA battery with deep cycle for energy storage system.
- **Super long cycle life**
  Using long-life technology and design, more than 4200 cycles @ 70% DOD, design life is 15 years.
- **Leading lead carbon technology**
  Using lead carbon technology, improve the charge acceptance ability, reduce the cathode sulphation, more suitable for the partial state of charge (PSOC) application.
- **Advanced manufacturing technology**
  Advanced manufacturing technology and strict manufacturing process, ensure the consistency and reliability of the product.
- **Modular system design**
  Modular design and installation, compact structure, saving the installation area and space, easy installation, convenient maintenance.

Technical Parameters

Single Cell Technical Parameters

FCP-500 and FCP-1000 two type of single cell

FCP series single cell technical parameters

Battery type		FCP - 500	FCP - 1000
Nominal voltage		2V	2V
Nominal capacity@25℃		500Ah(C_{10})	1000Ah(C_{10})
Nominal capacity		1000Wh	2000Wh
Weight		41kg	75kg
Dimensions	H	508mm	508mm
	W	172mm	172mm
	L	166mm	303mm
Mass energy density		24Wh/kg	27Wh/kg
Volume energy density		69Wh/L	79Wh/L
Max. current	Charge	0.2C_{10}A	0.2C_{10}A
	Discharge	0.4C_{10}A	0.4C_{10}A
Cycle times (25℃)	70%DOD	4200	4200
Design life (25℃)		15years	15years

Module Technical Parameters

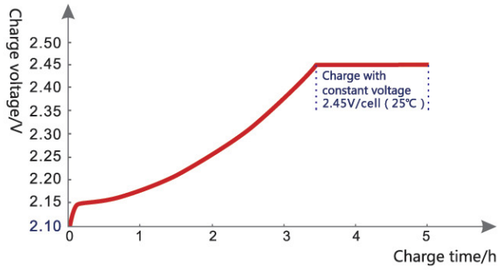
FCP-500-12 and FCP-1000-12 two kind of module

FCP series module technical parameters

Battery type		FCP–500–12	FCP–1000–12	Note
Nominal voltage		12VDC	12VDC	
Nominal capacity@25℃		500Ah(C_{10})	1000Ah(C_{10})	10.8VDC 1.8V/cell
Weight		260kg	500kg	
Plastic container/cover		UK94V–0	UK94V–0	
Internal resistance		0.3mΩ/cell	0.2 mΩ/cell	Reference value
Terminal type		M10	M10	
Temperature	Charge	0℃~40℃	0℃~40℃	
	Discharge	–15℃~45℃	–15℃~45℃	
	Storage	–15℃~40℃	–15℃~40℃	
Charge	Charge voltage	14.7VDC (2.45V/cell)	14.7VDC (2.45V/cell)	25℃
	Voltage range	15.4VDC ~14.2VDC	15.4VDC ~ 14.2VDC	0℃~40℃
	Temperature coefficient	–30mV/℃	–30mV/℃	14.7V;25℃
Max. current	Charge	0.2C_{10}A	0.2C_{10}A	Contious using
	Discharge	0.4C_{10}A	0.4C_{10}A	
Life	Cycle times	4200	4200	25℃, 70% DOD charge & discharge
	Service life	15years	15years	
Installation method		Horizontal (terminal on the side)	Horizontal (terminal on the side)	It is important for long life

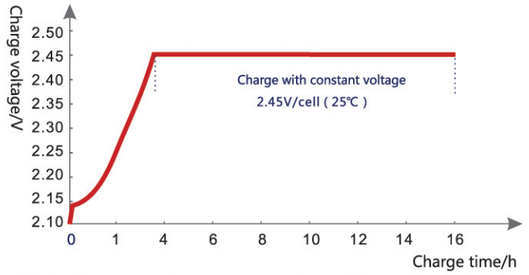
Charge Method

Cycle charge curve



Note: The max. charge current should be controlled in 0.1C_{10} ~ 0.2C_{10}.

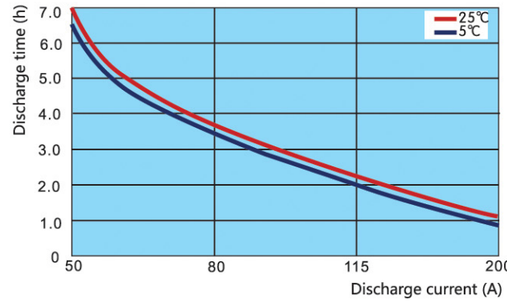
Equalizing charge curve



Note: The max. charge current should be controlled in 0.1C_{10} ~ 0.2$C_{10,}$ need regularlly equalizing charge.

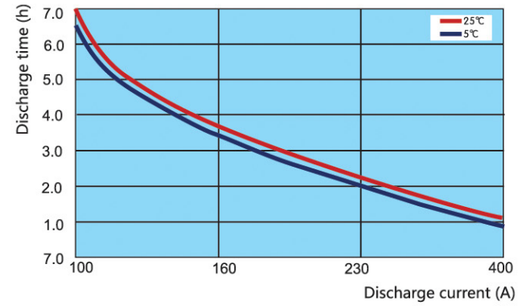
Disharge Characteristics

FCP-500 disharge current VS disharge time curve



Note: The best discharge current is 50A or lower, discharge time can reach above 7hours ,maximum discharge depth is 70% .

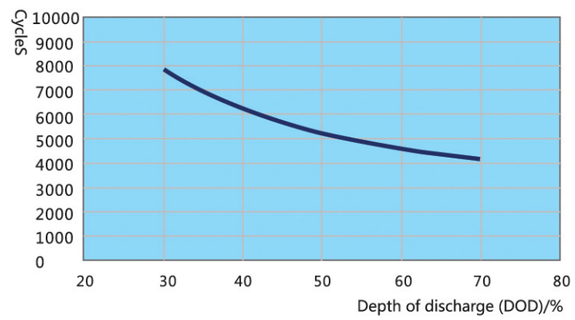
FCP-1000 disharge current VS disharge time curve



Note: The best discharge current is 100A or lower, discharge time can reach above 7hours ,maximum discharge depth is 70% .

Cycle Life

Depth of discharge vs cycles curve



Cost per KWh