

## LFP12.8-18

Lithium iron phosphate battery





# **LITHIUM**

SERIES

#### Characteristics

Standard charge mode (25°C±2°C, <75%RH)  Standard charge mode (25°C±2°C, <75%RH)  Nominal charging current  S.6A  Maximum charging current  Charging cut-off voltage  Discharging  Continuous discharge current  Maximum pulse discharge current (<100ms)  Discharge cut-off voltage  11.2V  Self discharge rate (25°C)  Sam/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)	Characteristics			
Nominal capacity at 5 hours rate (25°C)   18Ah	Electrical			
Energy	Nominal voltage		12.8V	
Charge Efficiency at 0.2C (25°C)         99.5%           Discharge Efficiency at 1C (25°C)         96-99%           Approx. internal resistance (25°C)         s150.0 mΩ           Cycle life / 0.2C 100% D.O.D         >3000 cycles           Capacity affected by temperature         40°C         101%           Discharge Efficiency at 1C (25°C)         100%         90%           Capacity affected by temperature         25°C         100%           Discharge Efficiency at 1C (25°C)         90%         100%           Capacity affected by temperature         100%         90%           Discharge Efficiency at 100 m/s         90%         90%         90%           Discharge Efficiency at 100 m/s         90%         9	Nominal capacity a	t 5 hours rate (25°C)	18Ah	
Discharge Efficiency at 1C (25°C)   96-99%			230Wh	
Approx. internal resistance (25°C)   \$150.0 mΩ   \$3000 cycles	Charge Efficiency at 0.2C (25°C)		99.5%	
Cycle life / 0.2C 100% D.O.D         >3000 cycles           Capacity affected by temperature         40°C         101%           affected by temperature         25°C         100%           0°C         90%         90%           -10°C         75%           Mechanical         Length         151±1.5mm (5.94inch)           Width         99±1mm (3.89inch)           Height         93±1mm (3.66inch)           Total height         94±1mm (3.70inch)           Terminal type         Custom           Torque         3.0±0.6N.m           Weight         2.09kg (2.98lbs)±4%           Water & Dust resistance         IP65           Battery container ABS UL94-HB         V-0 optional           Cell strings         4 strings           Temperature         25°C±3 (77±5°F)           Operating         Discharge         -20°C~60°C (-4°F~140°F)           Charge         0°C~45°C (32°F~104°F)           Charging         Charge         0°C~45°C (32°F~104°F)           Charging         Charge         0°C~40°C (32°F~104°F)           Standard charge mode (25°C±2°C, <75%RH)	Discharge Efficiency at 1C (25°C)		96-99%	
Capacity affected by temperature         25°C         100%           0°C         90%           -10°C         75%           Mechanical         Length         151±1.5mm (5.94inch)           Width         Width         99±1mm (3.89inch)           Height         93±1mm (3.66inch)           Torque         Joho.6N.m           Weight         2.09kg (2.98lbs)±4%           Water & Dust resistance         IP65           Battery container ABS UL94-HB         V-0 optional           Cell strings         4 strings           Temperature         Discharge         25°C±3 (77±5°F)           Operating temperature range         25°C±3 (77±5°F)           Operating temperature range         0°C~45°C (32°F~104°F)           Charging         0°C~45°C (32°F~104°F)           Charging voltage at 25°C         14.6V           Standard charge mode (25°C±2°C, <75%RH)	Approx. internal resistance (25°C)		≤150.0 mΩ	
Capacity affected by temperature 25°C 100%  O°C 90% -10°C 75%  Mechanical  Length 151±1.5mm (5.94inch) Width 99±1mm (3.89inch) Height 93±1mm (3.66inch) Total height 94±1mm (3.70inch)  Terminal type Custom  Torque 3.0±0.6N.m  Weight 2.09kg (2.98lbs)±4%  Water & Dust resistance IP65  Battery container ABS UL94-HB V-0 optional Cell strings 4 strings  Temperature Nominal operating temperature 25°C±3 (77±5°F) Charging Charge 20°C~60°C (-4°F~140°F) (-4°F~140°F) Charging Voltage at 25°C 14.6V  Standard charge mode (25°C±2°C, <75%RH)  Charging out-off voltage 14.6V  Discharge 14.6V  Discharging Current 9A  Charging cut-off voltage 14.6V  Discharge 20A  Maximum pulse discharge current (<100ms) 60A  Discharge rate (25°C) ≤33/month  Comunication & connection  Communication protocol (optional) N/A  SOC (optional)	Cycle life / 0.2C 100% D.O.D		>3000 cycles	
affected by temperature   \[ \begin{array}{c ccccccccccccccccccccccccccccccccccc	affected by	40°C	101%	
temperature   0°C   90%   -10°C   75%		25°C	100%	
-10°C   75%		0°C	90%	
Length   151±1.5mm (5.94inch)   Width   99±1mm (3.89inch)   Height   93±1mm (3.66inch)   Total height   94±1mm (3.70inch)		-10°C	75%	
Width     99±1mm (3.89inch)       Height     93±1mm (3.66inch)       Toral height     94±1mm (3.70inch)       Terminal type     Custom       Torque     3.0±0.6N.m       Weight     2.09kg (2.98lbs)±4%       Water & Dust resistance     IP65       Battery container ABS UL94-HB     V-0 optional       Cell strings     4 strings       Temperature       Nominal operating temperature     25°C±3 (77±5°F)       Operating temperature     -20°C~60°C (-4°F~140°F)       Charge     5torage     0°C~45°C (32°F~104°F)       Charging       Charging voltage at 25°C     14.6V       Charging voltage at 25°C     14.6V       Standard charge mode (25°C±2°C, <75%RH)	Mechanical			
Dimensions  Height 93±1mm (3.66inch)  Total height 94±1mm (3.70inch)  Terminal type Custom  3.0±0.6N.m  Weight 2.09kg (2.98lbs)±4%  Water & Dust resistance IP65  Battery container ABS UL94-HB V-0 optional  Cell strings 4 strings  Temperature  Nominal operating temperature 25°C±3 (77±5°F)  Operating temperature Charge 0°C~45°C (32°F~113°F)  Storage 0°C~40°C (32°F~113°F)  Storage 0°C~40°C (32°F~104°F)  Charging voltage at 25°C 14.6V  Standard charge mode (25°C±2°C, <75%RH)  Standard charging current 3.6A  Maximum charging current 9A  Charging cut-off voltage 14.6V  Discharge current 20A  Maximum pulse discharge current (<100ms)  Discharge rate (25°C) ≤3%/month  Comunication & connection  Communication protocol (optional) N/A  SOC (optional)  Bluetooth	Dimensions	Length	151±1.5mm (5.94inch)	
Height 70tal height 93±1mm (3.66inch)  Terminal type Custom  Torque 3.0±0.6N.m  Weight 2.09kg (2.98lbs)±4%  Water & Dust resistance IP65  Battery container ABS UL94-HB V-0 optional  Cell strings 4 strings  Temperature  Nominal operating temperature 25°C±3 (77±5°F)  Operating temperature 7.0°C -45°C (32°F~113°F)  Storage 0°C~45°C (32°F~113°F)  Storage 0°C~40°C (32°F~104°F)  Charging  Charging voltage at 25°C 14.6V  Standard charge mode (25°C±2°C, <75%RH)  Standard charging current 3.6A  Maximum charging current 9A  Charging cut-off voltage 14.6V  Discharge 14.6V  Discharging  Continuous discharge current 20A  Maximum pulse discharge current (<100ms) 60A  Discharge cut-off voltage 11.2V  Self discharge rate (25°C) ≤3%/month  Comunication & connection  Communication protocol (optional) N/A  SOC (optional)		Width	99±1mm (3.89inch)	
Terminal type  Torque  3.0±0.6N.m  Weight  2.09kg (2.98lbs)±4%  Water & Dust resistance  Battery container ABS UL94-HB  Cell strings  Temperature  Nominal operating temperature  Operating temperature  Charge charge core occurrent  Charging  Charging  Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Maximum charging current  Charging current  3.6A  Maximum charging current  Charging current  Acharging cut-off voltage  Discharge current (<100ms)  Discharge rate (25°C)  Self discharge rate (25°C)  Self discharge rate (25°C)  Communication protocol (optional)  N/A  SOC (optional)  Bluetooth		Height	93±1mm (3.66inch)	
Terminal type  Torque  3.0±0.6N.m  Weight  Water & Dust resistance  Battery container ABS UL94-HB  Cell strings  Temperature  Nominal operating temperature  Operating temperature  Charge charge o°C~45°C (32°F~113°F)  Storage  Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Standard charging current  Charging current  3.6A  Maximum charging current  Charging current  Charging current  3.6A  Maximum pulse discharge current (<100ms)  Discharge rate (25°C)  Self discharge rate (25°C)  Self discharge rate (25°C)  Communication protocol (optional)  N/A  SOC (optional)  Self discharge inpectation  Self discharge rate (25°C)  Solve (3.2°F~104°F)  Copy (2.98lbs)±4%  1.960.  2.09kg (2.98lbs)±4%  1.960.  1.965.  3.0±0.6N.m  2.09kg (2.98lbs)±4%  1.965.  1.965.  3.0±0.6N.m  2.09kg (2.98lbs)±4%  1.965.  1.965.  3.0±0.6N.m  2.09kg (2.98lbs)±4%  1.965.  1.965.  3.0±0.6N.m  2.09kg (2.98lbs)±4%  4 strings  4 strings  7.00°C-40°C (32°F~140°F)  1.46V  0.2CA Constant Current to 14.6V  0.2CA Constant Current to 14.6V  1.46V, then Constant Voltage 14.6V  1.46V, then Constant Voltage 14.6V  1.46V until the current drops to 0.02CA. Rest 30 minutes, before use.  1.46V  1.46		Total height	94±1mm (3.70inch)	
Weight       2.09kg (2.98lbs)±4%         Water & Dust resistance       IP65         Battery container ABS UL94-HB       V-0 optional         Cell strings       4 strings         Temperature         Nominal operating temperature       25°C±3 (77±5°F)         Operating temperature       20°C~60°C (-4°F~140°F)         Charge       0°C~45°C (32°F~113°F)         Storage       0°C~40°C (32°F~104°F)         Charging         Charging voltage at 25°C       14.6V         Standard charge mode (25°C±2°C, <75%RH)	Terminal type		Custom	
Water & Dust resistance  Battery container ABS UL94-HB  Cell strings  Temperature  Nominal operating temperature  Operating temperature  Charge	Torque		3.0±0.6N.m	
Battery container ABS UL94-HB  Cell strings  Temperature  Nominal operating temperature  Operating temperature  Charge  Charge  Charge  Charge  Charging  Charging current  Charging current  Charging current  Charging cut-off voltage  Discharging  Continuous discharge current  Continuous discharge current  Continuous discharge current  Continuous discharge current  Comunication & connection  Communication protocol (optional)  Bluetooth	Weight		2.09kg (2.98lbs)±4%	
Cell strings  Temperature  Nominal operating temperature  Operating temperature  Charge  Charge  Storage  Charging  Charging  Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Storaging current  Charging current  Standard charging current  Charging current  O.2CA Constant Current to 14.6V, then Constant Voltage 14.6V until the current drops to 0.02CA. Rest 30 minutes, before use.  Nominal charging current  Charging cut-off voltage  Discharging  Continuous discharge current  Aximum pulse discharge current  Self discharge rate (25°C)  Salv/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)  Bluetooth			IP65	
Temperature  Nominal operating temperature  Operating temperature  Charge  Charge  Storage  Charging  Charging  Charging  Charging  Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Nominal charging current  Charging current  Standard charge mode (25°C±2°C, <75%RH)  Nominal charging current  Charging cut-off voltage  Discharge  Continuous discharge current (<100ms)  Maximum pulse discharge current (<100ms)  Discharge rate (25°C)  Self discharge rate (25°C)  Communication protocol (optional)  N/A  SOC (optional)  Discharging  Discharge cut-off voltage (25°C)  Discharging  Self discharge rate (25°C)  Self discontal (25°C)  Self discontal Current (<100ms)  O.2CA Constant Current to 14.6V  O.2CA Constant Current to 14.6V until the current drops to 0.02CA. Rest 30 minutes, before use.  Nominal charging current  S.6A  4.6V  Discharging  Continuous discharge current  Communication & connection  N/A  SOC (optional)	Battery container ABS UL94-HB		V-0 optional	
Nominal operating temperature  Operating temperature  Charge  Charge  Charge  O°C~45°C (32°F~113°F)  Storage  O°C~40°C (32°F~104°F)  Charging  Charging  Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Standard charging current  Maximum charging current  Charging cut-off voltage  Discharge  Charge  O°C~40°C (32°F~104°F)  O.2CA Constant Current to 14.6V, then Constant Voltage 14.6V until the current drops to 0.02CA. Rest 30 minutes, before use.  Nominal charging current  Adaximum charging current  Discharging  Continuous discharge current  Maximum pulse discharge current  Maximum pulse discharge current (<100ms)  Discharge cut-off voltage  Tl.2V  Self discharge rate (25°C)  S3%/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)	Cell strings		4 strings	
Operating temperature range  Charge  Charge  Storage  Charging  Charging  Charging  Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Nominal charging current  Charging cut-off voltage  Discharge current  Self discharge rate (25°C)  Sischarge rate (25°C)	Temperature			
temperature range  Charge  Storage  O°C~45°C (32°F~113°F)  Storage  O°C~40°C (32°F~104°F)  Charging  Charging voltage at 25°C  14.6V  0.2CA Constant Current to 14.6V, then Constant Voltage 14.6V until the current drops to 0.02CA. Rest 30 minutes, before use.  Nominal charging current  Asiana charging current  Charging cut-off voltage  Discharging  Continuous discharge current  Maximum pulse discharge current (<100ms)  Discharge cut-off voltage  11.2V  Self discharge rate (25°C)  ≤3%/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)	Nominal operating temperature		25°C±3 (77±5°F)	
temperature range  Charge  Storage  O°C~45°C (32°F~113°F)  O°C~40°C (32°F~104°F)  Charging  Charging  Charging voltage at 25°C  14.6V  O.2CA Constant Current to 14.6V, then Constant Voltage 14.6V until the current drops to 0.02CA. Rest 30 minutes, before use.  Nominal charging current  Asian dard charge current  Charging cut-off voltage  Continuous discharge current  Maximum pulse discharge current (<100ms)  Discharge cut-off voltage  11.2V  Self discharge rate (25°C)  ≤3%/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)	Operating	Discharge	-20°C~60°C (-4°F~140°F)	
Charging Charging Charging voltage at 25°C  Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Standard charge mode (25°C±2°C, <75%RH)  Nominal charging current  Maximum charging current  Charging cut-off voltage  Discharging  Continuous discharge current  Maximum pulse discharge current (<100ms)  Discharge cut-off voltage  Self discharge rate (25°C)  Sam/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)  Bluetooth	temperature	Charge	0°C~45°C (32°F~113°F)	
Charging voltage at 25°C  Standard charge mode (25°C±2°C, <75%RH)  Standard charge mode (25°C, <75%RH)  Standard charge mode (25°C, <75%RH)  Standard charge to 0.2CA Constant Current drops to 0.02CA. Rest 30 minutes, before use.  Standard charge use.  Standard charge current  Standard charge mode (25°C based on the constant of the current drops to 0.02CA. Rest 30 minutes, before use.  Standard charge current  Standard charge until the current drops to 0.02CA. Rest 30 minutes, before use.  Standard charge mode (25°C based on the current drops to 0.02CA. Rest 30 minutes, before use.  Standard charge use 14.6V  Standard charge mode (25°C, <75%RH)		Storage	0°C~40°C (32°F~104°F)	
Standard charge mode (25°C±2°C, <75%RH)  Standard charge mode (25°C±2°C, <75%RH)  Nominal charging current  Maximum charging current  Charging cut-off voltage  Discharging  Continuous discharge current  Maximum pulse discharge current (<100ms)  Discharge cut-off voltage  11.2V  Self discharge rate (25°C)  Sam/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)	Charging	·		
Standard charge mode (25°C±2°C, <75%RH)  Standard charge mode (25°C±2°C, <75%RH)  Nominal charging current  S.6A  Maximum charging current  Charging cut-off voltage  Discharging  Continuous discharge current  Maximum pulse discharge current (<100ms)  Discharge cut-off voltage  11.2V  Self discharge rate (25°C)  Sam/month  Comunication & connection  Communication protocol (optional)  N/A  SOC (optional)	Charging voltage at 25°C		14.6V	
Maximum charging current       9A         Charging cut-off voltage       14.6V         Discharging         Continuous discharge current       20A         Maximum pulse discharge current (<100ms)	Standard charge mode (25°C±2°C, <75%RH)		age 14.6V until the current drops to 0.02CA. Rest 30	
Charging cut-off voltage 14.6V  Discharging  Continuous discharge current 20A  Maximum pulse discharge current (<100ms) 60A  Discharge cut-off voltage 11.2V  Self discharge rate (25°C) ≤3%/month  Comunication & connection  Communication protocol (optional) N/A  SOC (optional) Bluetooth			3.6A	
Discharging       Continuous discharge current     20A       Maximum pulse discharge current (<100ms)	Maximum charging current		9A	
Continuous discharge current  Maximum pulse discharge current (<100ms) 60A  Discharge cut-off voltage 11.2V  Self discharge rate (25°C) ≤3%/month  Comunication & connection  Communication protocol (optional) N/A  SOC (optional) Bluetooth	Charging cut-off voltage		14.6V	
Maximum pulse discharge current (<100ms)	Discharging			
Discharge cut-off voltage  Self discharge rate (25°C) ≤3%/month  Comunication & connection  Communication protocol (optional) N/A  SOC (optional) Bluetooth			20A	
Self discharge rate (25°C) ≤3%/month  Comunication & connection  Communication protocol (optional) N/A  SOC (optional) Bluetooth			60A	
Comunication & connection  Communication protocol (optional)  SOC (optional)  N/A  Bluetooth			11.2V	
Communication protocol (optional)  N/A  SOC (optional)  Bluetooth			≤3%/month	
SOC (optional) Bluetooth	Comunication &	connection		
	Communication pr	otocol (optional)	N/A	
Maximum modules in parallel or series 4 in string, 6 in parallel	SOC (optional)		Bluetooth	
. , , , , , , , , , , , , , , , , , , ,	Maximum modules in paralel or series		4 in string, 6 in parallel	

### **Overview**

NPP Power Lithium-Iron Phosphate batteries offer superb improvement in characteristics compared to lead-acid technology. Due to the extreme cycle and calendar life, LiFePO4 batteries are an excellent long-term investment for your applications. Powerful, lightweight, safe, and smart, the Lithium-Iron Phosphate batteries are the future of the energy storage you can have right now.

### **Features**

**Longer cycle life** - Up to 15 times longer cycle life and 5 times longer float/calendar life than lead-acid batteries.

**More capacity** - Provides up to 100% of usable energy.

Lightweight - 60% lighter than lead-acid batteries.

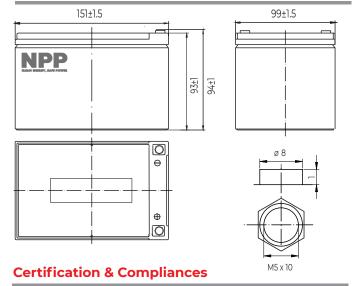
**High discharge rate** - Ability to fully discharge the battery at a high rate of discharge.

**Fast charging** - Charges much faster than conventional sealed lead-acid batteries.

**Long cycle life** - More than 3000 cycles at 100% depth of discharge.

**Intelligent BMS** - The battery management system monitors and adapts to battery conditions to maximize performance and safety.

### **Dimensions & Terminal Type (mm)**















Compliant to: IEC 62133-2

The data in this document is subject to change without notice and become contractual only after written confirmation. Please contact NPP Power for the latest available version.

### **Guangdong NPP New Energy Co., Ltd.**

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### **Guangzhou NPP Power Co., Ltd.**

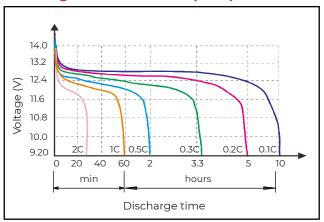
No.67 Lianglong Road, Huashan Town, Huadu District, Guangzhou, China.

Email: info@nppower.com.cn Tel: +86 20 37887 390

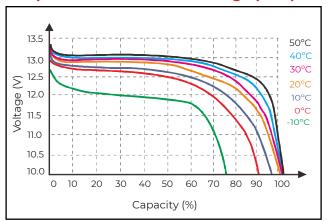


### SERIES

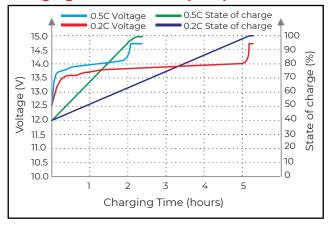
### Discharge characteristics (25°C)



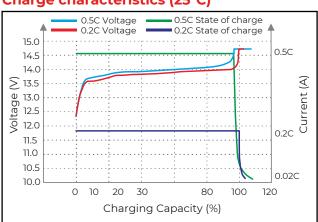
### Temperature effects on discharge (0.5C)



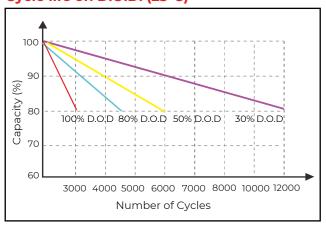
### Charging Time on S.O.C. (25°C)



### Charge characteristics (25°C)



### Cycle life on D.O.D. (25°C)



D.O.D. - depth of discharge S.O.C. - state of charge

### Self discharge characteristics

