

 宁波维科新能源科技有限公司 Ningbo Veken New Energy Technology Co.,Ltd		文件编号 Document NO.	
		版本号 Version NO.	A/1
项目名称 Item Name	FSD-36V10.4Ah -鳗鱼 MINI	页码 Page	1 / 15

锂离子电池产品规格书

Specification for Lithium-ion Battery

型号 Model:	VK-36V10.4Ah-B-10S4P
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变更记录

Revision History

版本 Revision	变更内容 Noted	变更人 Changed by	日期 Date
A/0	新品 Creation	董成杰	2024/12/18
A/1	标签格式修改	董成杰	2024/12/21

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1. 范围/Scope

本产品说明书规定了维科新能源科技有限公司向客户提供的可充电锂离子电池组的要求。

This product specification defines the requirements of the the rechargeable lithium ion battery pack to be supplied to the customer by Ningbo Veken New Energy Technology Co.,ltd.

2. 电池组基本参数/Battery Pack Basic Parameters

项目/ Item	参数/ Specification	备注/ Remarks
电芯型号/Cell Type	EVE-ICR18650/26V	亿纬
保护板/BMS	2050102116	CLY
充放电保险丝/Charge Discharge FUSE	Charge: 10A 贴片 Discharge: 30A 贴片	
额定电压/Rate Voltage	36V	
工作电压/Operation Voltage	27.5V~42V	
标称容量/Typical Capacity	10.4Ah	
最小容量/Minimum Capacity	9.12Ah	
电池组配置/Pack Configuration	10S4P	
电池尺寸/Pack Dimension	(430±1) mm*(67±1) mm*(73±1) mm	
电池重量/Pack Weight	2.5KG±0.2KG	
交流内阻/Initial AC Impedance	≤150mΩ	
标准充电/Standard Charge	CC Charge: 2A	@RT 参考充电器
	CV Cut-off: 200mA	Cut-off: 50mA*4
最大充电电流/ Maximum Charge Current	3A	
标准放电/Standard Discharge	CC discharge: 2A	@RT 0.2C (500mA*4)
最大放电电流 /Maximum Discharge Current	15A	It is not normal work mode
出货带电量 Shipping Capacity	≥60%	≥37.61V
认证标准/ Certification Standard	UL-SGS 认证/UN38.3 认证	
客户特殊要求 Customer special requirements	1、开状态，按键长按 5 秒关机，轻触显示当前电量	
	2、关机状态，按键长按 1 秒开机	
防水等级/Waterproof Grade	IPX5	模组

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3. 电芯规格参数/Cell Specification

项目/ Item	参数/ Specification	备注/ Remarks
电芯类型/Cell Type	EVE ICR18650/26V	EVE
平台电压/Nominal Voltage	3.60V	Average by Std.Charge/discharge
容量/Capacity	Nominal: 2600mAh	Charge: 0.5A, 4.20V, CCCV 50mA cut-off Discharge: 0.5A, 2.50V DC cut-off
	Minimum: 2400mAh	Charge: 0.5A, 4.20V, CCCV 50mA cut-off Discharge: 2.5A, 2.50V DC cut-off
不同温度下的容量 Temperature Dependency of Capacity	(Discharge@-20℃): ≥1680mAh (70%) (Discharge@25℃): ≥2400mAh (100%) (Discharge@55℃): ≥2160mAh (90%)	Cells shall be charged by Standard discharged by Standard at the following temperatures.
最大充电电压/ Maximum Charge Voltage	4.20V	
最大充电电流/ Maximum Charge Current	(0~15℃): 0.5A	
	(15~45℃): 1.25A	
标准放电 /Standard Discharge	0.2C (500mA)	
最小放电电压/ Minimum Discharge Voltage	2.50V	
最大瞬态放电电流/ Max. Instantaneous Discharge	7.5A	
循环寿命/Cycle Life	Capacity after 1000 cycles. Capacity≥70% Ci (Ci : the first discharge capacity of cycle life test at 25±2℃)	Charge: standard charge (1.25A, 4.20V, 125mA cut-off). Discharge: standard discharge (2.50A, 3.00V cut-off). Rest time: 10min after charge and 30min after discharge.

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4. 保护板规格参数/Battery Management System Parameters

4.1 电压保护参数（一级）/Voltage Protection Parameters

项目/ Item	参数/ Specification	备注/ Remarks
单节过充保护/Over-charge Protection for single cell	4250±25mV	Delay time: 500~1500mS
单节过充保护恢复/ Single cell overcharge protection release	4100±50mV	电压下降到恢复值或放电恢复
单节过放保护/Single cell Over-discharge Protection	2700mV±80mV	Delay time: 500~1500mS
单节过放保护恢复/ Single cell Over-discharge protection	3000mV±100mV	断开负载恢复或长按按钮 5S 后再次长按按钮 1S 恢复

4.2 电压保护参数（二级）/Voltage Protection Parameters

项目/ Item	参数/ Specification	备注/ Remarks
单节过充保护/Over-charge Protection for single cell	4250±25mV	Delay time: 500~1500mS
单节过充保护恢复/ Single cell overcharge protection release	4150±50mV	电压下降到恢复值
单节过放保护/Single cell Over-discharge Protection	/	Delay time: /
单节过放保护恢复/ Single cell Over-discharge protection	/	Delay time: /

4.3 电流保护参数（一级）/Current Protection Parameters

项目/ Item	参数/ Specification	备注/ Remarks
充电过流保护/Charge over-current Protection	24±5A	Delay time: 250~750mS
		Recovery : 移除充电器
放电过流保护/Discharge over-current Protection	60±10A	Delay time: 50~150mS
		Recovery : 断开负载恢复或长按按钮 5S 后再次长按按钮 1S 恢复

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4.4 电流保护参数（二级）/Current Protection Parameters

项目/ Item	参数/ Specification	备注/ Remarks
充电过流保护/Charge over-current Protection	/	Delay time: /
		Delay time: /
放电过流保护/Discharge over-current Protection	120±20A	Delay time: 2~18mS
		Delay time: 断开负载恢复或长按按钮 5S 后再次长按按钮 1S 恢复
短路保护/ Short circuit protection	YES	Delay time: 200~1500uS
		Recovery :断开负载恢复或长按按钮 5S 后再次长按按钮 1S 恢复

4.5 温度保护参数（一级）/Temperature Protection Parameters

项目/ Item	参数/ Specification	备注/ Remarks
充电低温保护/Charge low temperature Protection	0±5℃	Release value: 5±5℃温度下降到恢复值, 自动恢复
充电高温保护/Charge over-temperature protection	50±5℃	Release value: 45±5℃温度下降到恢复值, 自动恢复
放电低温保护/Discharge low temperature protection	-20±5℃	Release value: -15±5℃温度下降到恢复值, 自动恢复
放电高温保护/Discharge over-temperature protection	70±5℃	Release value: 65±5℃温度下降到恢复值, 自动恢复

4.6 温度保护参数（二级）/Temperature Protection Parameters

项目/ Item	参数/ Specification	备注/ Remarks
充电低温保护/Charge low temperature Protection	/	Release value: /
充电高温保护/Charge over-temperature protection	/	Release value: /
放电低温保护/Discharge low temperature protection	/	Release value: /
放电高温保护/Discharge over-temperature protection	/	Release value: /

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4.7 保护板功耗/Power consumption of protection board

状态/ Status	参数/ Specification	单位/ Unit
常态耗电/Constant power consumption	≤150	μA
过放功耗/	≤150	μA
睡眠模式/Sleep mode	/	/
深度睡眠模式/Deep sleep mode	/	/

5. 环境要求/Environmental Requirements

项目/ Item	参数/ Specification	备注/ Remarks
储存温度/ Storage Temperature	1 Month: 0~60℃	
	3 Months: 0~45℃	
	12 Months: 0~25℃	
储存湿度/ Storage Humidity	≤65%	
工作温度/ Operation Temperature	Charge: 0~15℃	≤0.5A
	Charge: 15~45℃	≤1.25A
	Discharge: -10~45℃	Pack cut-off temperature 70° C

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6. 电池组结构/Pack Configuration

6.1 电池组外观/Appearance of Battery Pack



6.2 电池组端口定义/Port Definition of Battery Pack

6.2.1 充电口定义/Charge Port Definition



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6.2.2 放电口定义/Discharge Port Definition



6.2.3 LED



灯板按键逻辑

- 关机状态，灯板按键 1 秒开机，LED 显示当前电量，延迟 3 秒关闭
- 开机状态，短按灯板按键，LED 显示当前电量，延迟 3 秒关闭，长按 5 秒关机，进入休眠状态
- 出货默认为关机状态

LED 状态/Status				
状态/Status	闪烁 (R)	红灯 (R)	绿灯 (G)	蓝灯 (B)
条件/Conditions	$U \leq 33.5V$	$33.5V \leq U < 36V$	$36V \leq U < 38V$	$U \geq 38V$

7. 标贴位置定义/Label Position Definition

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7.1 标贴位置/ Label Position



7.2 标签定义/ Label Definition

Lithium-ion battery Pack
 Model:VK-36V10.4Ah-B-10S4P
 Nominal: 36Vdc
 Rated: 10.4Ah 374.4Wh



FSDMY01Y6YC210001

WARNING – To reduce the risk of injury, user must read instruction Manual
 Use only dedicated charger provided

AVERTISSEMENT – Pour prévenir les blessures, l'utilisateur doit lire le manuel d'utilisation

Ningbo Veken New Energy Technology Co., Ltd.



条码标贴

警告标贴

防撕标贴

标签定义/Label definition			
	标签 1/ Label 1	标签 2/ Label 2	标签 3/ Label 3
定义/ Definition	条码标签 Barcode label	警告标签 Warning label	防撕标贴 Tear proof label
规格/ Size	50*27mm	50*27mm	16*10mm

7.3 条码内容/Barcode Content

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Lithium-ion battery Pack
Model:VK-36V10.4Ah-B-10S4P
Nominal: 36Vdc
Rated: 10.4Ah 374.4Wh



FSDMY01Y6YC210001

WARNING – To reduce the risk of injury, user must read instruction Manual
 Use only dedicated charger provided
AVERTISSEMENT – Pour prévenir les blessures, l'utilisateur doit lire le manuel d'utilisation
Ningbo Veken New Energy Technology Co., Ltd.



FSD: 客户代码-富士达
 MY: 外壳代码-鳗鱼
 01: 机型代码
 Y6: 电芯代码-亿纬 2600mAh
 YC21: X-2024 年,12-12 月,21-21 日
 0001: 流水码 4 位数

8. 包装规格/Packaging Specifications

暂无

9. 安全规程和使用说明/Safety Specification and Instructions

- 电池组使用前，请仔细阅读使用说明书和电池组表面标识。
Please read the instruction manual and battery surface label carefully before using the battery pack.
- 请在正常的环境中使用电池组。
Please use battery pack in the normal environment.
- 在使用过程中，应远离热源、高压，避免儿童玩弄电池组！切勿摔打电池组！
During use, keep away from heat source and high voltage, and avoid children playing with the battery pack! Don't drop it!
- 切勿将电池组正负极短路！非专业人士切勿拆装电池组！请勿让电池组受潮，以免发生危险！
Don't short-circuit the anode and cathode! Non-professionals don't dismantle/install the battery pack! Please don't let the battery be affected with damp, lest produce risk!
- 长期不用时，请将电池组保存完好。让电池组处于半荷电状态。请用绝缘材料包裹电池组，以避免金属直接接触电池组，造成电池组损坏。将电池保存在阴凉干燥处。
Please store battery pack in good condition if not use it for a long time. Keep battery pack with a half-charged state. Please wrap the battery pack with insulation material to avoid damage caused by metal contact with the battery string. Store the battery pack in a ventilated dry place.
- 废弃电池组请安全妥当处理，不要投入火中或水中！
Please dispose waste battery pack safely and properly, don't throw it into fire or water!

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10. 危险警告及注意事项/Danger Warning and Precautions

- 电池组内部具有保护机构和保护电路可以避免发生危险。不合适的拆装将会损坏保护功能，造成电池组发生发热、冒烟、变形或燃烧。
Battery pack can avoid danger with protection agency and protection circuit inside. Inappropriate dismantling/installation will damage the protective function, causing the battery to generate heat, smoke, deform or burn.
- 不要将电池组正负极用金属连接，也不要将电池组与金属放在一起存储或移动。如果电池组被短路，将会引起超大电流流过从而损坏电池，造成电池发热、冒烟、变形或燃烧。
Don't connect the anode and cathode of the battery pack with metal, and don't store or move the battery pack with metal. If the battery pack is short-circuited, it can cause large current to flow through the battery pack and damage it, causing it to heat, smoke, deform or burn.
- 加热和焚烧电池将会造成电池组隔离物熔化、安全功能失效或电解质燃烧。过热将会导致电池组内部短路，造成电池发热、冒烟、变形或燃烧。
Heating and incineration of the battery pack will result in the melting of the battery pack separator, failure of the safety function, or electrolyte combustion. Overheating will cause a short circuit inside the battery pack, causing the battery to generate heat, smoke, deform or burn.
- 不要在火源、烤炉等热源附近或超过 75℃ 的环境中使用电池组。过热将会导致电池组内部短路，造成电池发热、冒烟、变形或燃烧。
Don't use battery pack near heat sources such as fire sources and ovens or in environments exceeding 75 °C. Overheating will cause a short circuit inside the battery pack, causing the battery to generate heat, smoke, deform or burn.
- 不要弄湿电池或将电池投入水中。否则会造成电池内部保护电路功能失效和发生不正常的化学反应，可能造成电池发热、冒烟、变形或燃烧。
Don't wet battery or throw it into water. Otherwise, the internal protection circuit of the battery pack will fail and an abnormal chemical reaction will occur, which may cause the battery pack to generate heat, smoke, deform or burn.
- 避免在火源附近或阳光直射下充电否则会导致电池组内部保护电路功能失效或发生不正常的化学反应，造成电池组寿命缩短，甚至造成其失效、发热、冒烟、变形或燃烧。
Avoid charging near the fire or under direct sunlight. Otherwise, the internal protection circuit of the battery pack will fail or an abnormal chemical reaction will occur, which will shorten the life of the battery pack, or even cause it to fail, heat, smoke, deform or burn.

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- 请使用专用充电器并正确充电。使用非专用充电器给电池充电会发生危险。在不正常的条件下充电会导致电池内部保护电路功能失效或发生不正常的化学反应，有可能造成电池组发热、冒烟、变形或燃烧。

Please use a dedicated charger and charge it properly. Using a non-dedicated charger to charge the battery is dangerous. Charging under abnormal conditions will cause the internal protection circuit of the battery to fail or an abnormal chemical reaction, which may cause the battery pack to heat, smoke, deform or burn.

- 禁止用金属凿入电池组、锤打或摔打电池、或其他方法破坏电池，否则会造成电池组发热、冒烟、变形或燃烧，甚至会发生危险。
- It is forbidden to chisel the battery pack with metal, hammer or beat the battery, or damage the battery by other methods. Otherwise, the battery pack will heat, smoke, deform or burn, or even be dangerous.

- 严禁将电池直接接在电源插座上。高压、大电流流过电池会造成电池组损坏，或造成电池组发热、冒烟、变形或燃烧。

It is strictly forbidden to connect battery directly to the power socket. High voltage and large current flowing through the battery will damage the battery pack, or cause it to heat, smoke, deform or burn.

- 不可将电池组用于其它非配套工具。

Don't use battery pack for other non-compatible tools.

- 不合适的使用条件会损坏电池组的性能、降低寿命，甚至会造成电池组发热、冒烟、变形或燃烧。

Inappropriate condition will damage the performance of battery pack, reduce the life span, even will cause the battery pack to heat, smoke, deform or burn.

- 电池组并不适用于所有电气设备，客户若需要将电池组用于超出文件规格以外的设备，或在文件规定以外的使用条件下使用电池组，应事先联系维科确认保护功能的完善性。至少应咨询电池的大电流，快速充电，特殊应用的问题。否则引起的任何事故维科新能源科技有限公司概不负责。Battery packs are not available for all electrical equipment, and customers who need to use battery packs for equipment beyond the specifications of the document, or use battery packs under conditions of use other than those specified in the documents, should contact Wei Ke in advance to confirm the perfection of the protection function. At the very least, you should consult the battery for high current, fast charging, special application problems. Otherwise cause any accidents Wei Ke New Energy Technology is not responsible

- 对于在超过文件规定以外的条件下使用电池而造成的任何意外事故，如超出使用的电流范围，电压范围、温度范围等；维科新能源科技有限公司概不负责。For any accident caused by the use of the battery in conditions other than those specified in the document, such as exceeding the current range used, voltage range,

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temperature range, etc. Veken New Energy Technology is not responsible

- 电池在贮存过程中每三个月充电一次。
The process of storage battery charge once every three months.

11. 其他事项/Other Items

- 以上所述，可以作为供需双方对于电池产品性能和检验规则的约定框架。如果没有新的书面约定或更改通知，即可按此执行。本技术规格书参考客户要求、电芯规格书以及其它相关标准制订。
As above, it can be used as rules framework for battery product performance and stipulations of inspection to supplier and demand. If there is not new agreement in writing or change notification, then perform according this. This technical specification is formulated with reference to customer requirements, battery cell specifications and other related standards.
- 请客户在收到规格书后，及时确认回传，如客户收到本规格书后三天没有回传，则默认显示本规格书内容。**Please confirm the specification timely after got it if you haven't confirmed it after got specification within three days.it shows the default content of the specification.**