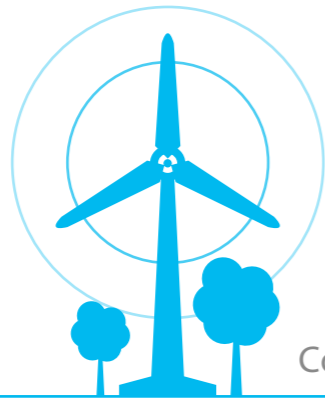


德明  
电源



[www.demingpower.com](http://www.demingpower.com)



Company profile

## 公司简介

济南德明电源设备有限公司是一家专注于风能、太阳能等可再生能源电源产品研发、生产、销售和服务的高新技术企业。在行业内有很高的知名度及口碑，是中国风能协会的常任理事单位。是国家援助国外项目的指定产品。90%的产品用于出口，主要销往英国、美国、德国、加拿大、泰国、韩国、日本、土耳其、印度、印尼等国家。主要产品有离网风力发电机控制器、并网风力发电机控制器、太阳能充电控制器、风光互补控制器、水力发电机控制器、风光互补路灯控制器、并网逆变电源、离网逆变电源等。

德明以技术创新为企业发展的根本，目前拥有专业技术研发人员10余人，其中博士生导师1人，硕士5人，并与山东大学、山东建筑大学等高校合作。年研发费用不少于销售收入的20%，不断探索新能源电源领域的先进技术，如风力发电机电磁控制技术，MPPT技术、风光互补系统远程监控等。现拥有三项核心技术的国家发明专利，八项实用新型专利，风力发电机控制技术已经达到国际先进水平。

德明所有产品质量保证体系完善，已拥有9001认证。实行全面、全员、全过程的质量控制，出厂前逐台严格测试，各项性能优于国家有关标准，全部产品通过欧盟CE认证及UL认证。

Jinan Deming Power Equipment Co., Ltd. is a high-tech enterprise which specializes in the design & manufacturing solar and wind power equipments. Main products include controller of off-grid wind turbine generator, grid-connected wind turbine generator controller, solar charge controller, wind-solar hybrid controller, hydroelectric generator controller, wind-solar hybrid streetlight controller and inverter, etc.

Deming takes technical innovation as fundamental, with more than 10 technicians, including 1 doctoral supervisor and 5 masters. We are cooperating with Shandong University, Shandong Jianzhu University and invest not less than 20% of sales revenue every year for the new technology development such as EMCON of wind turbine, MPPT application and remote monitoring of hybrid solar wind power system, etc. Now we have 11 National Invention Patents of core technology and the wind turbine control technology has reached the international advanced level.

Deming all product quality assurance system is perfect, has been 9001 certification. All equipments must be strictly tested before delivery to make sure the properties are superior to relevant national standard. All products have passed CE and UL certificate.





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## 并网风力发电机 (风光互补) 控制器 | On Grid Wind Turbine(wind solar hybrid)Controller

### FKJ-GT型 并网风力发电机 (风光互补) 控制器特性

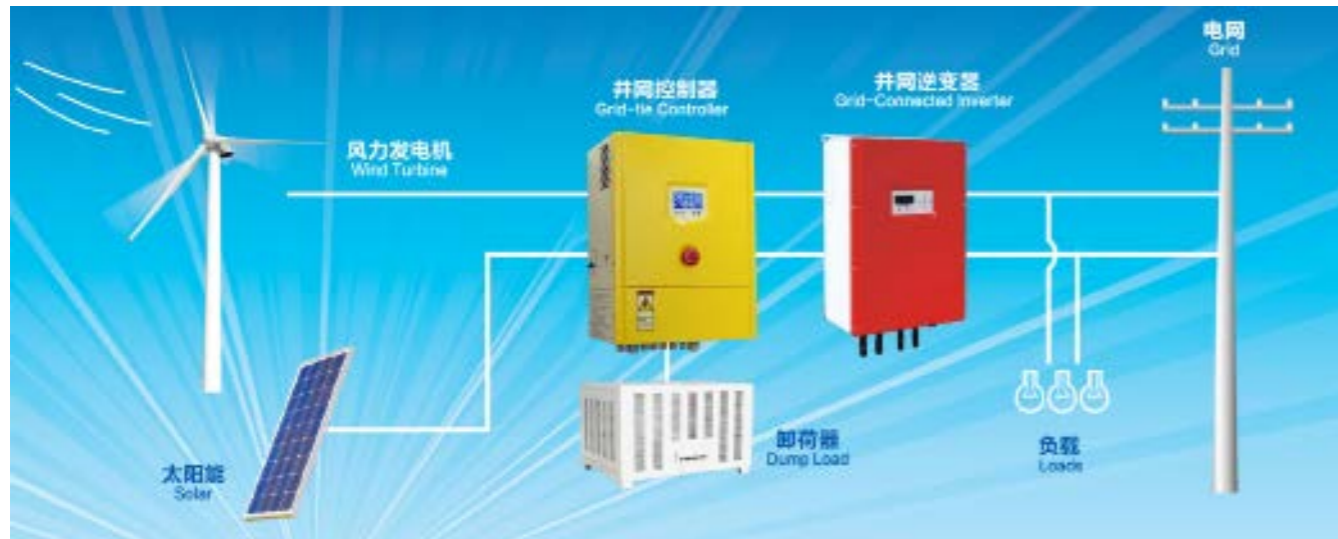
- ◆ 本产品参照JB/T6939.1-2004号行业标准，GB/T19115.1-2003号国家标准生产，也可根据用户技术要求生产。
- ◆ 大屏LCD显示。图形直观显示控制器工作状态。丰富的数据显示：实时风机电压、电流，太阳能板电压、电流，直流输出电压、电流，累计发电量（主板自带电池，在断电情况下，可存储30天历史数据。）
- ◆ 采用两套控制系统，PWM恒压系统+三相卸荷系统。
- ◆ PWM恒压控制是风力发电机额定功率的120%。当超出PWM恒压功率范围时，三相卸荷立即自动启动，运行10-20分钟三相卸荷停止卸荷，风力发电机重启，供电恢复输出，保证风力发电整套系统安全运行。
- ◆ 在大风、强风情况下，控制器恒压输出，提供DC恒压电源，保证逆变器正常工作。
- ◆ 在并网逆变器掉线情况下，控制器恒压输出，等待逆变器恢复工作。
- ◆ 当电网停电时，控制器三相卸荷自动启动，逆变器停止向电网输出。待电网恢复供电时，控制器停止三相卸荷，逆变器恢复供电。
- ◆ 控制器内部设有防雷器。把窜入风力发电机电力线的瞬时过电压限制在设备或系统所能承受的电压范围内，或将强大的雷电流泄流入地，保护设备不受雷电冲击而损坏。
- ◆ 控制器具有急停开关，遇紧急情况时，按下前面板急停按钮，控制器全部电源切断，风力发电机立即制动（三相卸荷）。
- ◆ 控制器具有手动三相卸荷开关，用户可根据情况使用。使用此开关，风力发电机将强制性制动（三相卸荷）。
- ※ 采用Modbus通讯协议。方便客户进行二次开发。
- ※ 可通过RS485接口调整控制器的技术参数。方便专业客户针对不同的风力发电机作出调整。
- ※ 支持WIFI和GPRS。客户可通过PC端或移动端实时监控并网风力发电系统的工作状态，也可以查询历史工作状态。移动端兼容Android和ios。
- ※ 可根据客户需求增加太阳能电池板控制系统。
- ※ 控制器根据风力发电机的种类，可增加偏航控制、转舵控制、机械折尾控制、机械刹车、液压刹车、电磁刹车，等多种制动控制功能。

### FKJ-GT (Grid-tie) model On Grid Wind Turbine (wind solar hybrid) Product Characteristics

- ◆ The product is manufactured according the JB/T6939.1-2004 industrial standard and GB/T 19115.1-2003 national standard also with users' technical requirements.
- ◆ Big LCD display.The images tell working state visually.Various data show: real-time wind turbine voltage,current,solar panel voltage,current,DC output voltage,current,total power generation(The main board is with button battery,in case of power failure, history data can be saved for 30 days)
- ◆ Two sets of control systems,PWM constant voltage system and three-phase dump load system.
- ◆ PWM constant voltage control is 120% of the rated power of the wind turbine. In case exceeding of PWM' s capacity, the three-

phase dump load will automatically start immediately. After 10-20 minutes, the three-phase dump load will stop and the wind turbine will re-start to resume power supply to ensure the safe running of the overall wind turbine generation system.

- ◆ When the strong or super-strong wind conditions, the controller can conduct constant voltage output to ensure the inverter safety running.
- ◆ When the condition of disconnected grid-connected inverter, the controller can conduct constant voltage output and wait for inverter resumption.
- ◆ When the grid is cut off, the three-phase dump load of the controller will automatically start to work and the inverter will stop output to grid. When the grid resuming, the controller stops three-phase dump load and the inverter will resume power supply.
- ◆ The inside of the controller is equipped with surge protector. Contain the over voltage into the wind turbine under the bearable voltage of the equipment or system. On another way, to conduct the strong lightning current into the earth directly to avoid any damage of equipment.
- ◆ The controller is equipped with emergency stop switch; in case of emergency, press down the emergency stop button in the front panel to cut off all power supply of the controller and the wind turbine will immediately brake,three-phase dump load,.
- ◆ The controller is equipped with manual three-phase dump load switch. To using this switch, the wind turbine will brake (three-phase dump load).
- ※ Adopt Modbus Communication protocol. Convenient to carry out the secondary development.
- ※ Adjusting the technical specification via RS485 is available. Convenient to adjust the different wind turbines for professional customers.
- ※ Support WIFI and GPRS. Customers can monitor the real-time working state of the on grid wind power system via PC and mobile and query history working state. Both Android and IOS are compatible in Mobile.
- ※ Can increase the solar panel control system according to customer requirements.
- ※ For the different wind turbine, the controller can be equipped with mechanical yawing, rotate tail control, furlled empennage, mechanical brake,hydraulic brake, electromagnetism brake and other brake functions.



## 并网风力发电机(风光互补)控制器 1KW-3KW On Grid Wind Turbine (wind solar hybrid) Controller 1KW-3KW



## 并网风力发电机 (风光互补) 控制器技术参数 1.5KW-3KW

### Technical Parameters of the On Grid Wind Turbine (wind solar hybrid) Controller 1.5KW-3KW

型号 Type	FKJ-GT1.5KW	FKJ-GT2KW	FKJ-GT3KW
风力发电机额定功率 Wind turbine rated power	1.5KW	2KW	3KW
风力发电机最大功率 Wind turbine Max. power	3KW	4KW	6KW
风机额定电压 Wind turbine rated voltage	AC220V	AC220V	AC220V
*太阳能板功率 (可选) Solar panels power (optional)	300W	600W	900W
功能 Function	整流、控制、直流输出 Rectifier, control, DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、避雷器 Over voltage protection, network electric cut off protection, regulated supply output, arsester		
手动功能 Manual function	风机手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率, 太阳能电压、电流、功率, 直流输出电压, 直流输出电流, 直流输出功率, 累计功率 Wind turbine voltage, current, power; Solar voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
PWM 恒压电压 PWM constant voltage (可设置 Settable)	≥320dc	≥320dc	≥320dc
风力发电机三相卸荷动作电压 (可设置) Wind turbine 3-phase dump load voltage (Settable)	350±5Vdc	350±5Vdc	350±5Vdc
风力发电机三相卸荷延时 Wind turbine 3-phase dump load time-lapse	12-20 min	12-20 min	12-20 min
太阳能保险 Solar panels fuse	2A	3A	4A
PWM 卸荷保险 PWM dump load fuse	10A	10A	16A
直流输出保险 Fuse of DC output	16A	16A	20A
工作温度 Work environment temperature	-30~60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
散热方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C, 精度 Accuracy: ±1°C		
控制器尺寸 Size of the controller (mm)	510*360*240	510*360*240	510*360*240
控制器重量 Weight of the controller	15Kg	17Kg	17Kg
卸荷器尺寸 Size of the dump load (mm)	410*360*120	410*360*120	400*410*250
卸荷器重量 Weight of the dump load	7Kg	9Kg	13Kg

\*以上技术参数仅供参考

1. Could be custom made to user specifications. 2. Could have solar power control subject to user demand.

\*以上技术参数仅供参考

1.可依照用户技术参数定制 2.可根据用户需要增加太阳能板功率



## 并网风力发电机(风光互补)控制器5KW-10KW

### On Grid Wind Turbine (wind solar hybrid) Controller 5KW-10KW



## 并网风力发电机(风光互补)控制器技术参数 5KW-10KW

### Technical Parameters of the On Grid Wind Turbine (wind solar hybrid) Controller 5KW-10KW

规格 Type	FKJ-GT5KW	FKJ-GT5KW	FKJ-GT10KW
风力发电机额定功率 Wind turbine rated power	5KW	5KW	10KW
风力发电机最大功率 Wind turbine Max. power	10KW	10KW	20KW
风机额定电压 Wind turbine rated voltage	AC220V	AC380-400V	AC380-400V
*太阳能板功率 (可选) Solar panels power (optional)	1.5KW	1.5KW	3KW
功能 Function	整流、控制、直流输出 Rectifier, control, DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、避雷器 Over voltage protection, network electric cut off protection, regulated supply output, arrester		
手动功能 Manual function	风机手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率, 太阳能电压、电流、功率, 直流输出电压, 直流输出电流, 直流输出功率, 累计功率 Wind turbine voltage, current, power; Solar voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
PWM 恒压电压 (可设置) PWM constant voltage (Settable)	≥320dc	≥520dc	≥520dc
风力发电机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage (Settable)	350±5Vdc	540±5Vdc	540±5Vdc
风力发电机三相卸荷延时 Wind turbine 3-phase dump load time-lapse	12-20 min	12-20 min	12-20 min
太阳能保险 Solar panels fuse	5A	5A	8A
PWM 卸荷保险 PWM dump load fuse	25A	16A	32A
直流输出保险 Fuse of DC output	32A	20A	40A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	< 90% 不结露 < 90% No condensation		
噪音 (1m) Noise (1m)	< 40dB		
防护等级 Degree of protection	IP20(室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远端通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation(optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	510*360*240	510*360*240	580*400*240
控制器重量 Weight of the controller	18Kq	18Kq	23Kq
卸荷器尺寸 Size of the dump load (mm)	600*450*380	600*450*380	690*450*530
卸荷器重量 Weight of the dump load	28Kq	28Kq	35Kq

1. Could be custom made to user specifications. 2. Could have solar power control subject to user demand.

\*以上技术参数仅供参考

1.可依照用户技术参数定制 2.可根据用户需要增加太阳能板功率



## 并网风力发电机控制器15KW-30KW

### On Grid Wind Turbine Controller 15KW-30KW





## 并网风力发电机控制器技术参数15KW-30KW

### Technical Parameters of the On Grid Wind Turbine Controller 15KW-30KW

规格 Type	FKJ-GT15KW	FKJ-GT20KW	FKJ-GT30KW
风机额定功率 Wind turbine rated power	15KW	20KW	30KW
风机最大功率 Wind turbine Max. power	30KW	40KW	60KW
风机额定电压 Wind turbine rated voltage	AC380V-400V	AC380V-400V	AC380V-400V
功能 Function	整流、控制、直流输出 Rectifier,control,DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、避雷器 Over voltage protection, network electric cut off protection, regulated supply output, arsester		
手动功能 Manual function	风机手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率, 太阳能电压、电流、功率, 直流输出电压, 直流输出电流, 直流输出功率, 累计功率 Wind turbine voltage, current, power; Solar voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
PWM 恒压电压 (可设置) PWM constant voltage (Settable)	≥520dc	≥520dc	≥520dc
风力发电机三相卸荷动作电压1 (可设置) wind turbine 3-phase dump load voltage1 (Settable)	540±5Vdc	540±5Vdc	540±5Vdc
风力发电机三相卸荷动作电压2 (可设置) wind turbine 3-phase dump load voltage2 (Settable)	-----	540±5Vdc	550±5Vdc
风力发电机三相卸荷2 延时 Time-lapse of the wind turbine 3-phase dump load2	12-20 min	12-20 min	12-20 min
PWM 卸荷保险 PWM dump load fuse	50A	63A	80A
直流输出保险 Fuse of DC output	63A	80A	100A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20(室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation(optional)	-4mw/°C/2V,-35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	580*400*240	650*600*240	650*600*240
控制器重量 Weight of the controller	25Kq	36Kq	38Kq
卸荷器尺寸 Size of the dump load (mm)	690*450*530	720*500*1300	720*500*1300
卸荷器重量 Weight of the dump load	41Kq	70Kq	80Kq

1. Could be custom made to user specifications. 2. Could have solar power control subject to user demand.

\*以上技术参数仅供参考

1.可依照用户技术参数定制 2.可根据用户需要增加太阳能板功率



## 并网风力发电机控制器50KW-200KW

### On Grid Wind Turbine Controller 50KW-200KW



## 并网风力发电机控制器技术参数50KW-200KW

### Technical Parameters of the On Grid Wind Turbine Controller 50KW-200KW

规格 Type	FKJ-GT50KW	FKJ-GT100KW	FKJ-GT200KW
风力发电机额定功率 Wind turbine rated power	50KW	100KW	200KW
风力发电机最大功率 Wind turbine Max. power	100KW	200KW	300KW
风机额定电压 Wind turbine rated voltage	AC400V	AC400V	AC400V
功能 Function	整流、风机控制、直流输出； Rectifier, control, DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、避雷器 Over voltage protection, network electric cut off protection, regulated supply output, arrester		
手动功能 Manual function	风机手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率，太阳能电压、电流、功率，直流输出电压，直流输出电流，直流输出功率，累计功率 Wind turbine voltage, current, power; Solar voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
PWM 恒压电压 PWM constant voltage1 (可设置 Settable)	≥560Vdc	≥560Vdc	≥560Vdc
PWM 恒压电压 PWM constant voltage2 (可设置 Settable)	-----	≥560Vdc	≥560Vdc
PWM 恒压电压 PWM constant voltage3 (可设置 Settable)	-----	-----	≥560Vdc
风力发电机三相卸荷动作电压1 (可设置 Settable) wind turbine 3-phase dump load voltage1	580±5Vdc	580±5Vdc	580±5Vdc
风力发电机三相卸荷延时1 three-phase dump load 1 delay time	12-20 min	12-20 min	12-20 min
风力发电机三相卸荷动作电压2 (可设置 Settable) wind turbine 3-phase dump load voltage2	600±5Vdc	600±5Vdc	600±5Vdc
风力发电机三相卸荷延时2 three-phase dump load 2 delay time	12-20 min	12-20 min	12-20 min
风力发电机三相卸荷动作电压3 (可设置 Settable) wind turbine 3-phase dump load voltage3	-----	600±5Vdc	600±5Vdc
风力发电机三相卸荷延时3 three-phase dump load 3 delay time	-----	12-20 min	12-20 min
PWM 卸荷保险 PWM dump load fuse	100A	63A*2	63A*3
直流输出保险 Fuse of DC output	160A	250A	450A
自备 PWM 卸荷连接线 Connecting wire of the PWM dump load	>20mm <sup>2</sup>	>15mm <sup>2</sup>	>15mm <sup>2</sup>
自备三相卸荷连接线 Connecting wire of the dump load	>12mm <sup>2</sup>	>16mm <sup>2</sup>	>20mm <sup>2</sup>
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪声 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 indoor)		
散热方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extra control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C, 精度 Accuracy: ±1°C		
控制器尺寸 Size of the controller (mm)	600*500*1200 mm	600*500*1200 mm	600*500*1200 mm
控制器重量 Weight of the controller	94Kg	96Kg	96Kg
卸荷器尺寸 Size of the dump load (mm)	720*500*1300	720*500*1300(2pcs)	720*500*1300(2pcs)
卸荷器重量 Weight of the dump load	107Kg	107Kg*2	107Kg*2

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制。

## 离网PWM风光（柴）互补控制器 | Off-Grid PWM Wind Solar ( Diesel ) Hybrid Controller

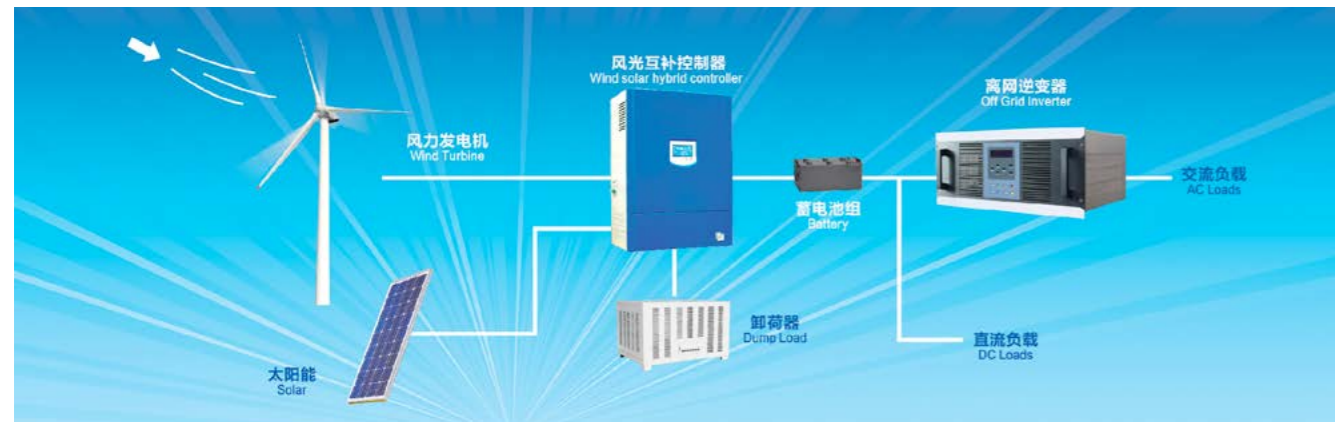
### FKJ-B 型 PWM离网风光（柴）互补控制器特性

- ◆ 本产品依照JB/T6939.1-2004号行业标准，GB/T19115.1-2003号国家标准生产，也可根据用户技术要求生产。
- ◆ 大屏LCD显示。图形直观显示控制器工作状态。丰富的数据显示：实时风机电压、电流、功率，太阳能电压、电流、功率，蓄电池电压、充电电流（主板自带电池，在断电情况下，可存储30天历史数据。）
- ◆ 采用两套控制系统，PWM恒压系统 + 三相卸荷系统。
- ◆ PWM恒压控制是风力发电机额定功率的120%。当超PWM恒压功率范围时，三相卸荷立即自动启动，保证风力发电整套系统安全运行。
- ◆ PWM控制。在大风、强风情况下，保证风力发电机对蓄电池恒压、恒流充电。
- ◆ 在蓄电池脱节、损坏情况下，三相卸荷自动启动。防止风力发电机空转、飞车事故发生。
- ◆ 蓄电池防反接保护，蓄电池防脱节保护，蓄电池防损坏保护。
- ◆ 蓄电池过充保护。当蓄电池充满时（蓄电池电压达到额定电压125%），控制器将自动三相卸荷，停止对蓄电池充电。
- ◆ 蓄电池自动恢复充电功能。当蓄电池电压降至额定电压108%时，三相卸荷器停止卸荷，自动恢复对蓄电池充电。
- ◆ 控制器具有手动三相卸荷开关，用户可根据情况使用。使用此开关，风力发电机将强制性三相卸荷。
- ◆ 控制器内部设有防雷器。把窜入风力发电机电力线的瞬时过电压限制在设备或系统所能承受的电压范围内，或将强大的雷电流泄入地，保护设备不受雷电冲击而损坏。
- ※ 可根据客户需求增加太阳能电池板控制系统。
- ※ 可增加柴油机接口，自动控制柴油发电机启动和停机。
- ※ 采用Modbus通讯协议。方便客户进行二次开发。
- ※ 可通过RS485接口调整控制器的技术参数。方便专业客户针对不同的风力发电机作出调整。
- ※ 支持WIFI和GPRS。客户可通过PC端或移动端实时监控并网风力发电系统的工作状态，也可以查询历史工作状态。移动端兼容Android和ios。
- ※ 控制器根据风力发电机的种类，可增加偏航控制、转舵控制、机械折尾控制、机械刹车、液压刹车、电磁刹车，等多种制动控制功能。

### FKJ-B model off grid PWM wind solar(diesel)hybrid controller Product Characteristics

- ◆ The product is manufactured according the JB/T6939.1-2004 industrial standard andGB/T 19115.1-2003 national standard also with users' technical requirements.
- ◆ Big LCD display.The images tell working state visually.Various data show: real-time wind turbine voltage,current,power;solar panel voltage,current,power;battery group voltage, charge current.(The main board is with button battery,in case of power failure, historydata can besaved for 30 days)
- ◆ Two sets of control system,PWM constant voltage system and three-phase dump load system.

- ◆ PWM constant voltage control is 120% of the rated power of the wind turbine. In case exceeding of PWM's capacity, the three-phase dump load will automatically start immediately to ensure safe running of the overall wind turbine system.
- ◆ When the strong or super-strong wind conditions PWM control to ensure battery charged by the wind turbine with constant voltage and current.
- ◆ When the battery disconnect or damage, the three-phase dump load will start automatically to avoid the wind turbine idling and runaway accident.
- ◆ The protection function of battery: polarity reverse protection, disconnection and damage protection.
- ◆ Over-charging protection of the battery: When the battery is full (the battery voltage getting 125% of the rated voltage), the controller will carry out three-phase dump load automatically to stop charging the battery.
- ◆ Auto recharging of battery: When the battery voltage reduces to 108% of the rated voltage, it stops three-phase dump load to recharge battery automatically.
- ◆ The controller is equipped with manual three-phase dump load switch. To using this switch, the wind turbine will carry out three-phase dump load forcibly.
- ◆ The inside of the controller is equipped with surge arrester. Contain the over voltage into the wind turbine under the bearable voltage of the equipment or system. On the other way, to conduct the strong lightning current into the earth directly to avoid any damage of equipment.
- ※ Solar panel control system is optional. Based on customers' requirement.
- ※ Diesel generator port is optional. Control the generator start and stop automatically
- ※ Adopt Modbus Communication protocol. Convenient to carry out the secondary development.
- ※ Adjusting the technical specification via RS485 is available. Convenient to adjust the different wind turbines for professional customers.
- ※ Support WIFI and GPRS. Customers can monitor the real-time working state of the on grid wind power system via PC and mobile and query history working state. Both Android and IOS are compatible in Mobile.
- ※ For the different wind turbine, the controller can be equipped with mechanical yawing, Rotate tail control, furred empennage, mechanical brake, hydraulic brake, electromagnetism brake and other brake functions.



## 离网风光互补/风光柴互补控制器

Technical parameters of off grid wind solar (diesel) hybrid controller



离网风光互补/风光柴互补控制器技术参数500W

Technical parameters of off grid wind solar (diesel) hybrid controller 500W

规格 Type	500W-12Vdc	500W-24Vdc	500W-48Vdc
风力发电机额定功率 Wind turbine rated power	500W	500W	500W
风力发电机最大功率 Wind turbine max. power	1KW	1KW	1KW
*太阳能板功率 Solar panel power	200Wp	200Wp	200Wp
蓄电池额定电压 Battery	12Vdc	24Vdc	48Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier, charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率、太阳能板电压、电流、功率、蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>14Vdc	>29Vdc	>58Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	15±1Vdc	30±1Vdc	60±1Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	13.5±1Vdc	27±1Vdc	54±1Vdc
*太阳能停止充电电压 Solar control stop charging voltage	15±1Vdc	29±1Vdc	58±1Vdc
*太阳能恢复充电电压 Solar control recharge voltage	<14Vdc	<29Vdc	<58Vdc
*柴油发电机启动电压 Diesel generator starting voltage	10±1Vdc	20±1Vdc	40±1Vdc
*柴油发电机关闭电压 Diesel generator off voltage	13.5±1Vdc	27±1Vdc	54±1Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>16mm <sup>2</sup>	>8mm <sup>2</sup>	>6mm <sup>2</sup>
PWM 保险 PWM fuse	50A	20A	10A
*太阳能保险 Solar fuse	20A	10A	5A
充电保险 Charging fuse	63A	32A	20A
工作温度 Work environment temperature	-30~60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mV/°C/2V, -35°C~+80°C, 精度 Accuracy:±1°C		
控制器尺寸/重量 Controller Size (mm) Weight (kg)	510*360*240 17 Kg	510*360*240 17 Kg	510*360*240 17 Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	290*250*120 5 Kg	290*250*120 5 Kg	290*250*120 5 Kg

离网风光互补/风光柴互补控制器技术参数1KW

Technical parameters of off grid wind solar (diesel) hybrid controller 1KW

规格 Type	1KW-12V	1KW-24Vdc	1KW-48Vdc
风力发电机额定功率 Wind turbine rated power	1KW	1KW	1KW
风力发电机最大功率 Wind turbine max. power	2KW	2KW	2KW
*太阳能板功率 Solar panel power	300Wp	300Wp	300Wp
蓄电池额定电压 Battery	12Vdc	24Vdc	48Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier, charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率、太阳能板电压、电流、功率、蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>14Vdc	>29Vdc	>58Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	15±1Vdc	30±1Vdc	60±1Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	13.5±1Vdc	27±1Vdc	54±1Vdc
*太阳能停止充电电压 Solar control stop charging voltage	15±1Vdc	29±1Vdc	58±1Vdc
*太阳能恢复充电电压 Solar control recharge voltage	<14Vdc	<29Vdc	<58Vdc
*柴油发电机启动电压 Diesel generator starting voltage	10±1Vdc	20±1Vdc	40±1Vdc
*柴油发电机关闭电压 Diesel generator off voltage	13.5±1Vdc	27±1Vdc	54±1Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>16 mm <sup>2</sup>	>8mm <sup>2</sup>	>6mm <sup>2</sup>
PWM 保险 PWM fuse	100A	50A	25A
*太阳能保险 Solar fuse	32A	16A	10A
充电保险 Charging fuse	125A	63A	40A
工作温度 Work environment temperature	-30~60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mV/°C/2V, -35°C~+80°C, 精度 Accuracy:±1°C		
控制器尺寸/重量 Controller Size (mm) Weight (kg)	510*360*240 17 Kg	510*360*240 17 Kg	510*360*240 17 Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	290*250*120 5 Kg	290*250*120 5 Kg	290*250*120 5 Kg

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制

离网风光互补/风光柴互补控制器技术参数2KW

Technical parameters of off grid wind solar (diesel) hybrid controller 2KW

规格 Type	2KW-24Vdc	2KW-48Vdc	2KW-96Vdc
风力发电机额定功率 Wind turbine rated power	2KW	2KW	2KW
风力发电机最大功率 Wind turbine max. power	4KW	4KW	4KW
*太阳能板功率 Solar panel power	600Wp	600Wp	600Wp
蓄电池额定电压 Battery	24Vdc	48Vdc	96Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>29Vdc	>58Vdc	>116Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	30±1Vdc	60±1Vdc	120±2Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	27±1Vdc	54±1Vdc	108±2Vdc
*太阳能停止充电电压 Solar control stop charging voltage	29±1Vdc	58±1Vdc	116±2Vdc
*太阳能恢复充电电压 Solar control recharge voltage	<29Vdc	<58Vdc	<116Vdc
*柴油发电机启动电压 Diesel generator starting voltage	20±1Vdc	40±1Vdc	80±2Vdc
*柴油发电机关闭电压 Diesel generator off voltage	27±1Vdc	54±1Vdc	108±2Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>20mm <sup>2</sup>	>10mm <sup>2</sup>	>24mm <sup>2</sup>
PWM 保险 PWM fuse	100A	50A	32A
*太阳能保险 Solar fuse	32A	16A	10A
充电保险 Charging fuse	125A	63A	40A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V,-35°C~+80°C, 精度 Accuracy:±1°C		
控制器尺寸重量 Controller Size (mm) Weight (kg)	580*400*240 22 Kg	510*360*240 17 Kg	510*360*240 17 Kg
卸荷器尺寸重量 Dump load Size (mm) Weight (kg)	410*290*120 8 Kg	410*290*120 8 Kg	410*290*120 8 Kg

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制

离网风光互补/风光柴互补控制器技术参数2KW

Technical parameters of off grid wind solar (diesel) hybrid controller 2KW

规格 Type	2KW-120Vdc	2KW-220Vdc
风力发电机额定功率 Wind turbine rated power	2KW	2KW
风力发电机最大功率 Wind turbine max. power	4KW	4KW
*太阳能板功率 Solar panel power	600Wp	600Wp
蓄电池额定电压 Battery	120Vdc	220Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output	
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester	
手动功能 Manual function	风机手动刹车 Manual brake	
显示 Display mode	液晶显示 LCD+LED	
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current	
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>145Vdc	>260Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	150±2Vdc	270±2Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	138±2Vdc	245±2Vdc
*太阳能停止充电电压 Solar control stop charging voltage	150±2Vdc	265±2Vdc
*太阳能恢复充电电压 Solar control recharge voltage	138±2Vdc	245±2Vdc
*柴油发电机启动电压 Diesel generator starting voltage	100±2Vdc	180±2Vdc
*柴油发电机关闭电压 Diesel generator off voltage	135±2Vdc	245±2Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>4mm <sup>2</sup>	>2.5mm <sup>2</sup>
PWM 保险 PWM fuse	20A	10A
太阳能保险 Solar fuse	7A	4A
充电保险 Charging fuse	32A	20A
工作温度 Work environment temperature	-30-60°C	
相对湿度 Relative humidity	<90% 不结露 <90% No condensation	
噪音 (1m) Noise (1m)	<40dB	
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)	
制冷方式 Cooling method	强制风冷 Forced air cooling	
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake	
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet	
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V,-35°C~+80°C, 精度 Accuracy:±1°C	
控制器尺寸重量 Controller Size (mm) Weight (kg)	510*360*240 16 Kg	510*360*240 16 Kg
卸荷器尺寸重量 Dump load Size (mm) Weight (kg)	410*290*120 8 Kg	410*290*120 8 Kg

离网风光互补/风光柴互补控制器技术参数3KW

Technical parameters of off grid wind solar (diesel) hybrid controller 3KW

规格 Type	3KW-24Vdc	3KW-48Vdc	3KW-96Vdc
风力发电机额定功率 Wind turbine rated power	3KW	3KW	3KW
风力发电机最大功率 Wind turbine max. power	6KW	6KW	6KW
*太阳能板功率 Solar panel power	900Wp	900Wp	900Wp
蓄电池额定电压 Battery	24Vdc	48Vdc	96Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>29Vdc	>58Vdc	>116Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	30±1Vdc	60±1Vdc	120±2Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	27±1Vdc	54±1Vdc	108±2Vdc
*太阳能停止充电电压 Solar control stop charging voltage	30±1Vdc	60±1Vdc	120±2Vdc
*太阳能恢复充电电压 Solar control recharge voltage	<29Vdc	<58Vdc	<116Vdc
*柴油发电机启动电压 Diesel generator starting voltage	20±1Vdc	40±1Vdc	80±2Vdc
*柴油发电机关闭电压 Diesel generator off voltage	27±1Vdc	54±1Vdc	108±2Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>30mm <sup>2</sup>	>12mm <sup>2</sup>	>6mm <sup>2</sup>
PWM 保险 PWM fuse	160A	80A	40A
*太阳能保险 Solar fuse	50A	25A	12A
充电保险 Charging fuse	190A	125A	63A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V,-35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸重量 Controller Size (mm) Weight (kg)	580*400*240 23Kg	510*360*240 18Kg	510*360*240 17Kg
卸荷器尺寸重量 Dump load Size (mm) Weight (kg)	400*410*250 13Kg	400*410*250 13Kg	400*410*250 13Kg

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制

离网风光互补/风光柴互补控制器技术参数3KW

Technical parameters of off grid wind solar (diesel) hybrid controller 3KW

规格 Type	3KW-120Vdc	3KW-220Vdc
风力发电机额定功率 Wind turbine rated power	3KW	3KW
风力发电机最大功率 Wind turbine max. power	6KW	6KW
*太阳能板功率 Solar panel power	900Wp	900Wp
蓄电池额定电压 Battery	120Vdc	220Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output	
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester	
手动功能 Manual function	风机手动刹车 Manual brake	
显示 Display mode	液晶显示 LCD+LED	
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current	
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>145Vdc	>260Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	150±2Vdc	270±2Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	138±2Vdc	245±2Vdc
*太阳能停止充电电压 Solar control stop charging voltage	150±2Vdc	265±2Vdc
*太阳能恢复充电电压 Solar control recharge voltage	<140Vdc	<250Vdc
*柴油发电机启动电压 Diesel generator starting voltage	100±2Vdc	180±2Vdc
*柴油发电机关闭电压 Diesel generator off voltage	135±2Vdc	245±2Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>4mm <sup>2</sup>	>2.5mm <sup>2</sup>
PWM 保险 PWM fuse	32A	16A
*太阳能保险 Solar fuse	10A	6A
充电保险 Charging fuse	50A	25A
工作温度 Work environment temperature	-30-60°C	
相对湿度 Relative humidity	<90% 不结露 <90% No condensation	
噪音 (1m) Noise (1m)	<40dB	
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)	
制冷方式 Cooling method	强制风冷 Forced air cooling	
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake	
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet	
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V,-35°C~+80°C,精度 Accuracy:±1°C	
控制器尺寸重量 Controller Size (mm) Weight (kg)	510*360*240 17Kg	510*360*240 17Kg
卸荷器尺寸重量 Dump load Size (mm) Weight (kg)	400*410*250 13Kg	400*410*250 13Kg

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制

离网风光互补/风光柴互补控制器技术参数5KW

Technical parameters of off grid wind solar (diesel) hybrid controller 5KW

规格 Type	5KW-48Vdc	5KW-120Vdc	5KW-240Vdc
风力发电机额定功率 Wind turbine rated power	5KW	5KW	5KW
风力发电机最大功率 Wind turbine max. power	10KW	10KW	10KW
*太阳能板功率 Solar panel power	1.5KWp	1.5KWp	1.5KWp
蓄电池额定电压 Battery	48Vdc	120Vdc	240Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>58Vdc	>145Vdc	>290 Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	60±1Vdc	150±2Vdc	300±5Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	54±1Vdc	135±2Vdc	280±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	60±1Vdc	150±2Vdc	300±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	54±1Vdc	135±2Vdc	280±5Vdc
*柴油发电机启动电压 Diesel generator starting voltage	40±1Vdc	100±2Vdc	200±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	54±1Vdc	135±2Vdc	270±5Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>20mm <sup>2</sup>	>10mm <sup>2</sup>	>6mm <sup>2</sup>
PWM 保险 PWM fuse	125A	50A	32A
*太阳能保险 Solar fuse	40A	16A	10A
充电保险 Charging fuse	160A	63A	40A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V,-35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸/重量 Controller Size (mm) Weight (kg)	580*400*240 23Kg	510*360*240 17Kg	510*360*240 17Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	600*450*380 28Kg	600*450*380 28Kg	600*450*380 28Kg

Above parameter only for reference, could be custom made to user specifications. 以上技术参数仅供参考,可根据用户技术参数定制

离网风光互补/风光柴互补控制器技术参数10KW

Technical parameters of off grid wind solar (diesel) hybrid controller 10KW

规格 Type	10KW-120Vdc	10KW-220Vdc	10KW-240Vdc
风力发电机额定功率 Wind turbine rated power	10KW	10KW	10KW
风力发电机最大功率 Wind turbine max. power	20KW	20KW	20KW
*太阳能板功率 Solar panel power	3KWp	3KWp	3KWp
蓄电池额定电压 Battery	120Vdc	220V	240V
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	>145Vdc	>260Vdc	>290 Vdc
风机三相卸荷动作电压(可设置) Wind turbine 3-phase dump load voltage(Settable)	150±2Vdc	270±2Vdc	300±5Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	135±2Vdc	245±2Vdc	280±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	150±2Vdc	265±2Vdc	300±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	135±2Vdc	<250Vdc	<290Vdc
*柴油发电机启动电压 Diesel generator starting voltage	100±2Vdc	180±2Vdc	200±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	135±2Vdc	245±2Vdc	270±5Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>12mm <sup>2</sup>	>18mm <sup>2</sup>	>12mm <sup>2</sup>
PWM 保险 PWM fuse	125A	80A	63A
太阳能保险 Solar fuse	32A	16A	16A
充电保险 Charging fuse	160A	120A	100A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V,-35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸/重量 Controller Size (mm) Weight (kg)	580*400*240 24 Kg	580*400*240 24Kg	580*400*245 24Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	700*450*530 37 Kg	700*450*530 37Kg	700*450*530 37Kg



## 离网风光互补/风光柴互补控制器技术参数20KW-30KW

Technical parameters of off grid wind solar (diesel) hybrid controller 20KW-30KW



## 离网风光互补/风光柴互补控制器技术参数20-30KW

Technical parameters of off grid wind solar (diesel) hybrid controller 20-30KW

规格 Type	20KW-420Vdc	30KW-420Vdc
风力发电机额定功率 Wind turbine rated power	20KW	30KW
风力发电机最大功率 Wind turbine max. power	40KW	50KW
*太阳能板功率 Solar panel power	6KWp	9KWp
蓄电池额定电压 Battery	420Vdc	420Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output	
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester	
手动功能 Manual function	风机手动刹车 Manual brake	
显示 Display mode	液晶显示 LCD+LED	
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current	
PWM 恒压电压 (可设置) PWM constant pressure voltage(Settable)	> 507Vdc	> 507Vdc
风机三相卸荷动作电压1(可设置) Wind turbine 3-phase dump load voltage1(Settable)	520±5Vdc	520±5Vdc
风机三相卸荷动作电压2(可设置) Wind turbine 3-phase dump load voltage2(Settable)	525±5Vdc	525±5Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	475±5Vdc	475±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	520±5Vdc	520±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	475±5Vdc	475±5Vdc
*柴油发电机启动电压 Diesel generator starting voltage	350±5Vdc	350±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	475±5Vdc	475±5Vdc
自备三相卸荷连接铜线 Self-provided 3phase dump load connecting wire	> 6mm <sup>2</sup>	> 10mm <sup>2</sup>
自备蓄电池连接铜线 Self-provided battery connecting wire	> 12mm <sup>2</sup>	> 20mm <sup>2</sup>
PWM 保险 PWM fuse	80A	100A
*太阳能保险 Solar fuse	20A	32A
充电保险 Charging fuse	125A	180A
工作温度 Work environment temperature	-30~60°C	
相对湿度 Relative humidity	< 90% 不结露 < 90% No condensation	
噪音 (1m) Noise (1m)	< 40dB	
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)	
制冷方式 Cooling method	强制风冷 Forced air cooling	
*可增加控制功能 (可选) Extra Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake	
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet	
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C	
控制器尺寸/重量 Controller Size (mm) Weight (kg)	500*500*900 58 Kg	600*500*1200 95 Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	720*500*1030 90Kg	720*500*1300 110 Kg

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制



## 离网风光互补/风光柴互补控制器技术参数50-100KW

### Technical parameters of off grid wind solar (diesel) hybrid controller 50-100KW

规格 Type	50KW-420Vdc	100KW-420Vdc
风力发电机额定功率 Wind turbine rated power	50KW	100KW
风力发电机最大功率 Wind turbine max. power	80KW	200KW
*太阳能板功率 Solar panel power	15KWp	30KWp
蓄电池额定电压 Battery	420Vdc	420Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control,*DC output	
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester	
手动功能 Manual function	风机手动刹车 Manual brake	
显示 Display mode	液晶显示 LCD+LED	
显示内容 Display content	风机电压、电流、功率、蓄电池电压、充电电流 Wind turbine voltage, current, power; battery voltage, charge current	
PWM 恒压电压1 (可设置) PWM constant pressure voltage1 (Settable)	> 507Vdc	> 507Vdc
PWM 恒压电压2 (可设置) PWM constant pressure voltage2 (Settable)	-----	> 507Vdc
风机三相卸荷动作电压1(可设置) Wind turbine 3-phase dump load voltage1(Settable)	515±5Vdc	515±5Vdc
风机三相卸荷动作电压2(可设置) Wind turbine 3-phase dump load voltage2(Settable)	520±5Vdc	520±5Vdc
风机三相卸荷动作电压3(可设置) Wind turbine 3-phase dump load voltage3(Settable)	525±5Vdc	525±5Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	475±5Vdc	475±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	520±5Vdc	520±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	475±5Vdc	475±5Vdc
*柴油发电机启动电压 Diesel generator starting voltage	350±5Vdc	350±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	475±5Vdc	475±5Vdc
自备三相卸荷连接线 Self-provided 3phase dump load connecting wire	> 16mm <sup>2</sup>	> 32mm <sup>2</sup>
自备蓄电池连接线 Self-provided battery connecting wire	> 30mm <sup>2</sup>	> 60mm <sup>2</sup>
PWM 保险 PWM fuse	100A	63A*2
*太阳能保险 Solar fuse	50A	80A
充电保险 Charging fuse	200A	315A
工作温度 Work environment temperature	-30~60°C	
相对湿度 Relative humidity	< 90% 不结露 < 90% No condensation	
噪音 (1m) Noise (1m)	< 40dB	
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)	
制冷方式 Cooling method	强制风冷 Forced air cooling	
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake	
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet	
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C	
控制器尺寸/重量 Controller Size (mm) Weight (kg)	600*500*1200 110 Kg	600*500*1200 120Kg
卸荷尺寸/重量 Dump load Size (mm) Weight (kg)	720*500*1300 110 Kg 700*450*530 39 Kg	720*500*1300 110 Kg 720*500*1300 110 Kg

## 电磁式风力发电机控制器 | Electromagnetism type wind turbine controller

### 电磁式风力发电机控制器产品特性

- ◆ 本产品依照JB/T6939.1-2004号行业标准，GB/T19115.1-2003号国家标准生产，也可根据用户技术要求生产。
- ◆ 大屏LCD显示。图形直观显示控制器工作状态。丰富的数据显示：实时风机电压、电流、功率，蓄电池电压、充电电流（主板自带电池，在断电情况下，可存储30天历史数据。）
- ◆ 采用电磁制动控制。依据电磁原理，通过将发电机发出的多余电以PWM无级脉宽调制方式控制风力发电机三相绕组，起到高精度控制风力发电机的输出电压及功率的作用。
- ◆ PWM恒压控制。在大风、强风情况下，保证风力发电机对蓄电池恒压、恒流充电，或恒压输出。
- ◆ 控制器具有手动刹车开关，用户可根据情况使用。使用此开关，风力发电机将强制性刹车。
- ◆ 控制器内部设有避雷器。把窜入风力发电机电力线的瞬时过电压限制在设备或系统所能承受的电压范围内，或将强大的雷电流泄流入地，保护设备不受雷电冲击而损坏。
- ※ 可根据客户需求增加太阳能电池板控制系统。
- ※ 可增加柴油机接口，自动控制柴油发电机启动和停机。
- ※ 采用Modbus通讯协议。方便客户进行二次开发。
- ※ 可通过RS485接口调整控制器的技术参数。方便专业客户针对不同的风力发电机作出调整。
- ※ 支持WIFI和GPRS。客户可通过PC端或移动端实时监控并网风力发电系统的工作状态，也可以查询历史工作状态。移动端兼容Android和os。
- ※ 控制器根据风力发电机的种类，可增加偏航控制、转舵控制、机械折尾控制、机械刹车、液压刹车、电磁刹车，等多种制动控制功能。

### Electromagnetism type wind turbine controller product characteristics

- ◆ Based on the electromagnetism, the controller can control the one phase, two phases or three phases of the wind turbine by the PWM pulse free adjusting. So the out put power and voltage of the the wind turbine can be controlled exactly by this way.
- ◆ The product is manufactured according the JB/T6939.1-2004 industrial standard and GB/T 19115.1-2003 national standard also with users' technical requirements.
- ◆ Big LCD display.The images tell working state visually.Various data show: real-time wind turbine voltage,current,power;battery group voltage, charge current.(The main board is with button battery,in case of power failure, history data can be saved for 30 days)
- ◆ Adopt electromagnetic braking control.According to the electromagnetic theory, taking the excess power generated by generator according PWM control mode to control the wind generator three phase winding. To achieve high precision control of wind generator output voltage and power.
- ◆ When the strong or super-strong wind conditions PWM control to ensure battery charged by the wind turbine with constant voltage and current.
- ◆ The controller is equipped with manual brake switch. To using this switch, the wind turbine will brake.
- ◆ The inside of the controller is equipped with surge arrester. Contain the over voltage into the wind turbine under the bearable

voltage of the equipment or system. On the other way, to conduct the strong lightning current into the earth directly to avoid any damage of equipment.

- ※ Solar panel control system is optional. Based on customers' requirement.
- ※ Diesel generator port is optional. Control the generator start and stop automatically
- ※ Adopt Modbus Communication protocol. Convenient to carry out the secondary development.
- ※ Adjusting the technical specification via RS485 is available. Convenient to adjust the different wind turbines for professional customers.
- ※ Support WIFI and GPRS. Customers can monitor the real-time working state of the on grid wind power system via PC and mobile and query history working state. Both Android and OS are compatible in Mobile.
- ※ For the different wind turbine, the controller can be equipped with mechanical yawing, Rotate tail control, furred empennage, mechanical brake, hydraulic brake, electromagnetism brake and other brake functions.

### 电磁式风力发电机控制器优点 |

#### Advantage of electromagnetism wind turbine controller

- ◆ 用户使用简单，采用液晶面板，可视性强，易操作。 Easy operating and showing by LCD panel.
- ◆ 采用自主研发的核心控制组件，取代现有复杂控制流程，使控制过程更加简捷，故障率大大降低。并延长风力发电机使用寿命。 Use the new center control unit invented by our-self instead of previous complex control. Low fault and can extent life time of wind turbine.
- ◆ 采用新一代电磁控制技术原理，控制更加精确。 Use the new generation of electromagnetism control.
- ◆ 省去卸荷器，用户使用安全。 More safe operation by saving the dump load device.
- ◆ 替代复杂的机械控制。 Substitute the complex mechanical control.
- ◆ 不消耗额外能源，更节能环保。 Energy conservation: no additional power consumption.
- ◆ 降低风力发电机生产及维护成本，利于市场销售。 Save the manufacturing and maintenance cost of wind turbine



### 离网电磁式风力发电机控制器

#### Off grid electromagnetism wind turbine controller



## 离网电磁式风力发电机控制器技术参数2KW

Technical parameters of off grid electromagnetism wind turbine controller 2KW

规格 Type	FKJ-E2KW-48Vdc	FKJ-E2KW-96Vdc	FKJ-E2KW-120Vdc	FKJ-E2KW-220Vdc
风力发电机额定功率 Wind turbine rated power	2KW	2KW	2KW	2KW
风力发电机最大功率 Wind turbine max. power	4KW	4KW	4KW	4KW
蓄电池额定电压 Battery	48Vdc	96Vdc	120Vdc	220Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output			
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester			
手动功能 Manual function	风机手动刹车 Manual brake			
显示 Display mode	液晶显示 LCD+LED			
显示内容 Display content	风机电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; battery voltage, charge current			
风机恒压充电电压 (可设置) Wind turbine constant charge voltage (Settable)	>58Vdc	>116Vdc	>145Vdc	>260Vdc
风机停止充电电压 (可设置) Wind turbine stop charge voltage (Settable)	60±1Vdc	120±2Vdc	150±2Vdc	270±2Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	54±1Vdc	108±2Vdc	138±2Vdc	245±2Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>10mm <sup>2</sup>	>24mm <sup>2</sup>	>4mm <sup>2</sup>	>2.5mm <sup>2</sup>
充电保险 Charging fuse	63A	40A	32A	20A
工作温度 Work environment temperature	-30-60°C			
相对湿度 Relative humidity	<90% 不结露 <90% No condensation			
噪音 (1m) Noise (1m)	<40dB			
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)			
制冷方式 Cooling method	强制风冷 Forced air cooling			
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake			
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet			
*温度补偿 (可选) Temperature compensation (optional)	-4mw/°C/2V,-35°C~+80°C,精度 Accuracy:±1°C			
控制器尺寸 Controller Size (mm)	470*280*140	470*280*140	470*280*140	470*280*140
控制器重量 Weight (kg)	7 Kg	7 Kg	7 Kg	7 Kg

Above parameter only for reference, could be custom made to user specifications. 以上参数仅供参考, 可根据用户要求定制。

## 离网电磁式风力发电机控制器技术参数3KW

Technical parameters of off grid electromagnetism wind turbine controller 3KW

规格 Type	FKJ-E3KW-48Vdc	FKJ-E3KW-96Vdc	FKJ-E3KW-120Vdc	FKJ-E3KW-220Vdc
风力发电机额定功率 Wind turbine rated power	3KW	3KW	3KW	3KW
风力发电机最大功率 Wind turbine max. power	6KW	6KW	6KW	6KW
蓄电池额定电压 Battery	48Vdc	96Vdc	120Vdc	220Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output			
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester			
手动功能 Manual function	风机手动刹车 Manual brake			
显示 Display mode	液晶显示 LCD+LED			
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current			
风机恒压充电电压 (可设置) Wind turbine constant charge voltage (Settable)	>58Vdc	>116Vdc	>145Vdc	>260Vdc
风机停止充电电压 (可设置) Wind turbine stop charge voltage (Settable)	60±1Vdc	120±2Vdc	150±2Vdc	270±2Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	54±1Vdc	108±2Vdc	138±2Vdc	245±2Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>12mm <sup>2</sup>	>6mm <sup>2</sup>	>4mm <sup>2</sup>	>2.5mm <sup>2</sup>
充电保险 Charging fuse	125A	63A	50A	25A
工作温度 Work environment temperature	-30-60°C			
相对湿度 Relative humidity	<90% 不结露 <90% No condensation			
噪音 (1m) Noise (1m)	<40dB			
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)			
制冷方式 Cooling method	强制风冷 Forced air cooling			
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake			
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet			
*温度补偿 (可选) Temperature compensation (optional)	-4mw/°C/2V,-35°C~+80°C,精度 Accuracy:±1°C			
控制器尺寸 Controller Size (mm)	470*280*140	470*280*140	470*280*140	470*280*140
控制器重量 Weight (kg)	8 Kg	8 Kg	8 Kg	8 Kg

Above parameter only for reference, could be custom made to user specifications. 以上参数仅供参考, 可根据用户要求定制。

### 离网电磁式风力发电机控制器技术参数5KW

Technical parameters of off grid electromagnetism wind turbine controller 5KW

规格 Type	FKJ-E5KW-48Vdc	FKJ-E5KW-96Vdc	FKJ-E5KW-120Vdc	FKJ-E5KW-240Vdc
风力发电机额定功率 Wind turbine rated power	5KW	5KW	5KW	5KW
风力发电机最大功率 Wind turbine max. power	10KW	10KW	10KW	10KW
蓄电池额定电压 Battery	48Vdc	96Vdc	120Vdc	240Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier, charge, control, *DC output			
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arresster			
手动功能 Manual function	风机手动刹车 Manual brake			
显示 Display mode	液晶显示 LCD+LED			
显示内容 Display content	风机电压、电流、功率, 太阳能板电压、电流、功率, 蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current			
风机恒压充电电压 (可设置) Wind turbine constant charge voltage (Settable)	>58Vdc	>116Vdc	>145Vdc	>290 Vdc
风机停止充电电压 (可设置) Wind turbine stop charge voltage (Settable)	60±1Vdc	120±2Vdc	150±2Vdc	300±5Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	54±1Vdc	108±2Vdc	135±2Vdc	280±5Vdc
自备蓄电池连接导线 Self-provided battery connecting wire	>20mm <sup>2</sup>	>12mm <sup>2</sup>	>10mm <sup>2</sup>	>6mm <sup>2</sup>
充电保险 Charging fuse	160A	80A	63A	40A
工作温度 Work environment temperature	-30~60°C			
相对湿度 Relative humidity	<90% 不结露 <90% No condensation			
噪音 (1m) Noise (1m)	<40dB			
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)			
制冷方式 Cooling method	强制风冷 Forced air cooling			
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake			
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet			
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C, 精度 Accuracy: ±1°C			
控制器尺寸 Controller Size (mm)	480*304*230	480*304*230	480*304*230	480*304*230
控制器重量 Controller Weight (kg)	13 Kg	13 Kg	13 Kg	13 Kg

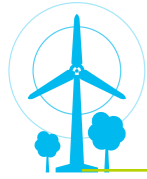
Above parameter only for reference, could be custom made to user specifications. 以上技术参数仅供参考, 可根据用户技术参数定制。

### 离网电磁式风力发电机控制器技术参数10KW

Technical parameters of off grid electromagnetism wind turbine controller 10KW

规格 Type	FKJ-E10KW-120Vdc	FKJ-E10KW-220Vdc	FKJ-E10KW-240Vdc
风力发电机额定功率 Wind turbine rated power	10KW	10KW	10KW
风力发电机最大功率 Wind turbine max. power	20KW	20KW	20KW
蓄电池额定电压 Battery	120Vdc	220V	240V
功能 Function	整流、充电、控制、*直流输出 Rectifier, charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arresster		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率, 太阳能板电压、电流、功率, 蓄电池电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
风机恒压充电电压 (可设置) Wind turbine constant charge voltage (Settable)	>145Vdc	>260Vdc	>290 Vdc
风机停止充电电压 (可设置) Wind turbine stop charge voltage (Settable)	150±2Vdc	270±2Vdc	300±5Vdc
风机恢复充电动作电压 Wind turbine recharge voltage	135±2Vdc	245±2Vdc	280±5Vdc
自备蓄电池连接导线 Self-provided battery connecting wire	>12mm <sup>2</sup>	>18mm <sup>2</sup>	>12mm <sup>2</sup>
充电保险 Charging fuse	160A	120A	100A
工作温度 Work environment temperature	-30~60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C, 精度 Accuracy: ±1°C		
控制器尺寸 Controller Size (mm)	480*304*230	480*304*230	480*304*230
控制器重量 Controller Weight (kg)	15 Kg	15 Kg	15 Kg

Above parameter only for reference, could be custom made to user specifications. 以上技术参数仅供参考, 可根据用户技术参数定制。



## 并网电磁式风力发电机控制器

On grid electromagnetism wind turbine controller



## 并网电磁式风力发电机控制器技术参数1KW-3KW

Technical parameters of on grid electromagnetism wind turbine controller 1KW-3KW

型号 Type	FKJ-EGT1KW	FKJ-EGT2KW	FKJ-EGT3KW
风力发电机额定功率 Wind turbine rated power	1KW	2KW	3KW
风力发电机最大功率 Wind turbine Max. power	2KW	4KW	6KW
风机额定电压 Wind turbine rated voltage	AC220V	AC220V	AC220V
功能 Function	整流、控制、直流输出 Rectifier, control, DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、避雷器 Over voltage protection, network electric cut off protection, regulated supply output, arrester		
手动功能 Manual function	风机手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率、直流输出电压、直流输出电流、直流输出功率、累计功率 Wind turbine voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
风力发电机恒压电压 (可设置) Wind turbine constant voltage (Settable)	≥320dc	≥320dc	≥320dc
风力发电机刹车电压 (可设置) Wind turbine brake voltage (Settable)	350±5Vdc	350±5Vdc	350±5Vdc
风力发电机刹车延时 Wind turbine brake time-lapse	12-20 min	12-20 min	12-20 min
直流输出保险 Fuse of DC output	8A	16A	20A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能(可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯(可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿(可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	510*360*240	510*360*240	510*360*240
控制器重量 Weight of the controller	17Kg	17Kg	17Kg

1. Could be custom made to user specifications. 2. Could have solar power control subject to user demand.

\*以上技术参数仅供参考

1.可依照用户技术参数定制 2.可根据用户需要增加太阳能板功率

## 并网电磁式风力发电机控制器技术参数1KW-3KW

### Technical parameters of on grid electromagnetism wind turbine controller 1KW-3KW

规格 Type	FKJ-EGT5KW	FKJ-EGT5KW	FKJ-EGT10KW
风力发电机额定功率 Wind turbine rated power	5KW	5KW	10KW
风力发电机最大功率 Wind turbine Max. power	10KW	10KW	20KW
风机额定电压 Wind turbine rated voltage	AC220V	AC380-400V	AC380-400V
功能 Function	整流、控制、直流输出 Rectifier, control, DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、逆并网 Over voltage protection, network electric cut off protection, regulated supply output, arrester		
手动功能 Manual function	风机手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率、直流输出电流、直流输出功率、累计功率 Wind turbine voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
风力发电机恒压电压 (可设置) Wind turbine constant voltage (Settable)	≥320dc	≥520dc	≥520dc
风力发电机刹车电压 (可设置) Wind turbine brake voltage (Settable)	350±5Vdc	540±5Vdc	540±5Vdc
风力发电机刹车延时 Wind turbine brake time-lapse	12-20 min	12-20 min	12-20 min
直流输出保险 Fuse of DC output	32A	20A	40A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	< 90% 不结露 < 90% No condensation		
噪音 (1m) Noise (1m)	< 40dB		
防护等级 Degree of protection	IP20(室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethemet		
*温度补偿 (可选) Temperature compensation(optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	510*360*240	510*360*240	580*400*240
控制器重量 Weight of the controller	18Kg	18Kg	23Kg

\*Above parameter only for reference

1. Could be custom made to user specifications. 2. Could have solar power control subject to user demand.

\*以上技术参数仅供参考

1.可依照用户技术参数定制 2.可根据用户需要增加太阳能板功率

## 风力发电机并网离网控制一体机 | On grid and battery charge integrated controller

### 风力发电机并网离网一体机产品特性

风力发电机并网离网控制一体机是我公司的专利产品（专利号：2013091800481060）。

我们国家正在大力推行微电网发电，在并网系统中，当网电停电或者检修的时候，风力发电机处于制动状态，能源无法到达高效的利用；在离网系统中，可能会出现用电剩余的情况，造成能源的浪费，这样就急需一台设备可以同时实现并网和离网。

本发明的风力发电机并网离网控制一体机直接从风力发电机取电后，分别进行离网和并网，只需一台风机、一台并网离网控制一体机、两台逆变器就可以实现风力微电网发电系统或风光互补微电网发电系统，减小了中间环节，极大地节约了成本，可以更高效率的利用能源。

基于家庭及局域用户首先满足离网系统供电的需求，在并网控制部分增加了手动开关。当风力不足，发电量不足时，用户可以手动关闭并网控制部分，使风力发电机发出的电能仅向蓄电池充电，保证家庭或局域用户供电。

### Grid-tied & off-grid wind turbine controller is our patented product (PATENT NO. 2013091800481060)

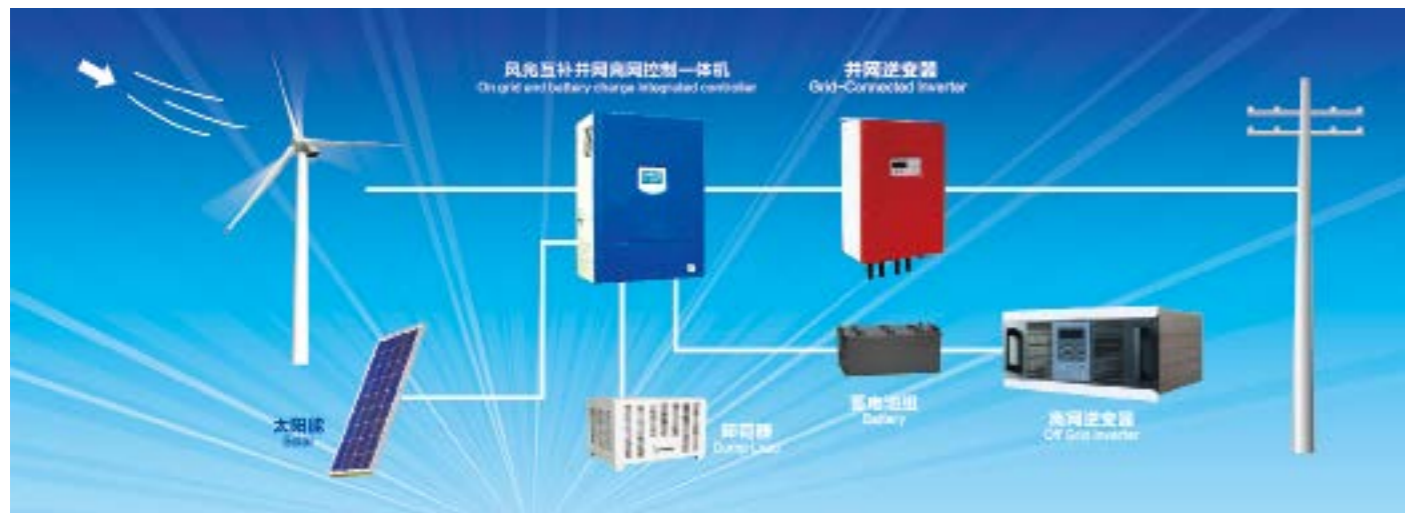
Our country is vigorously implementing the micro-grid generation, in the grid-connected system, when the electricity blackouts or repaired, the wind turbine is in the brake condition and the wind power utilization couldn't be in high-efficiency; in off-grid system, the possible condition of surplus electricity causes energy waste.

The product we invented taking electricity from the wind turbine directly, grid-tie and off-grid separately, only a wind turbine, a grid-tied & off-grid controller and two inverters could realize micro-grid wind power system and micro-grid wind solar hybrid power system, which saves intermediate links and the cost greatly. The power could be used in high-efficiency.

Based on families and LAN users, we first meet the requirement for off-grid system power supply and hand switch is added to in grid-connected control part. When the wind is weak, lacking of electricity, users could turn off the grid-connected control part, thus, the power from wind turbines could only charge the batteries to ensure the power supply of families and LAN users.

风力发电机并网离网控制一体机优点 |  
Advantages of Grid-tied & off-grid wind turbine controller

- ◆ 一台控制器实现并网离网的功能。 Grid-tied and off-grid are available in one controller
- ◆ 简化微网发电系统。 Simplifying the micro-grid power system
- ◆ 可选DC/DC降压模块，实现输出高电压风机给低电压蓄电池充电。  
DC/DC is optional, realizing output high-voltage charge the low-voltage batteries.
- ◆ 不消耗额外能源，更节能环保。 No consumption of extra energy, energy efficiency and environmental protection.
- ◆ 用户使用简单，易操作，安全。 Simple to use, easy to operate, safe
- ◆ 降低风力发电机生产及维护成本，利于市场销售。  
Reducing the cost of wind turbines manufacturing and maintaining, conducive for sales.



风力发电机并网离网控制一体机  
On grid and battery charge integrated controller



## 风光互补并网离网控制一体机技术参数5KW-10KW

### Technical Parameters of the FKJ-B-GT Wind Solar Controller 5KW-10KW

规格 Type	5KW-48Vdc	5KW-120Vdc	5KW-240Vdc	10KW-120Vdc
风力发电机额定功率 Wind turbine rated power	5KW	5KW	5KW	10KW
风力发电机最大功率 Wind turbine max. power	10KW	10KW	10KW	20KW
*太阳能板功率 Solar panel power	1.5KW	1.5KW	1.5KW	3KW
蓄电池额定电压 Battery	48Vdc	120Vdc	240Vdc	120Vdc
功能 Function	整流、控制、直流输出、充电 Rectifier, control, DC output, charge			
自动保护功能 Automatic protection function	过压保护、恒压、避雷器 Over voltage protection, constant voltage, arrester			
手动功能 Manual function	风机手动刹车 Manual brake			
显示 Display mode	液晶显示 LCD+LED			
显示内容 Display content	风机电压、电流、功率、太阳能板电压、电流、功率、蓄电池电压/DC 电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery			
PWM 恒压电压 PWM constant pressure voltage (可设置 Settable)	>56Vdc	>135Vdc	>280 Vdc	>138Vdc
风机三相负载动作电压 (可设置) wind turbine 3-phase load voltage (Settable)	58±1Vdc	145±2Vdc	290±5Vdc	145±2Vdc
风机恢复充电动作电压 wind turbine recharge voltage	54±1Vdc	135±2Vdc	280±5Vdc	135±2Vdc
*太阳能停止充电电压 Solar panels stop charging voltage	58±1Vdc	145±2Vdc	290±5Vdc	145±2Vdc
*太阳能恢复充电电压 Solar panels recharge voltage	54±1Vdc	135±2Vdc	280±5Vdc	135±2Vdc
直流电压输出 (连接并网逆变器) DC output voltage (connect on grid inverter)	0-58Vdc	0-145Vdc	0-290Vdc	0-145Vdc
自备蓄电池连接线 Self-provided connecting wire of the battery	>20mm <sup>2</sup>	>10mm <sup>2</sup>	>6mm <sup>2</sup>	>12mm <sup>2</sup>
PWM 保险 PWM fuse	125A	63A	40A	80A
*太阳能保险 Solar fuse	32A	16A	10A	25A
充电保险 Charging fuse	160A	63A	50A	125A
工作温度 Work environment temperature	-30-60°C			
相对湿度 Relative humidity	<90% 不结露 <90% No condensation			
噪音 (1m) Noise (1m)	<40dB			
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)			
制冷方式 Cooling method	强制风冷 Forced air cooling			
*可增加控制功能 (可选) Extral control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake			
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet			
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C, 精度 Accuracy:±1°C			
控制器尺寸 Size of the controller (mm)	510*360*240			580*400*240
控制器重量 Weight of the controller	18 Kg			23Kg
卸荷器尺寸 Size of the dump load (mm)	600*450*380			610*450*530
卸荷器重量 Weight of the dump load	28 Kg			35 Kg



## 风光互补并网离网控制一体机 20KW-50KW

On grid and battery charge integrated controller





规格 Type	20KW-360Vdc	30KW-420Vdc	50KW-480Vdc
风力发电机额定功率 Wind turbine rated power	20KW	30KW	50KW
风力发电机最大功率 Wind turbine max. power	40KW	50KW	100KW
*太阳能板功率 Solar panel power	6KW	9KW	
蓄电池额定电压 Battery	360Vdc	420Vdc	480Vdc
功能 Function	整流、控制、直流输出、充电 Rectifier, control, DC output, charge		
自动保护功能 Automatic protection function	过压保护、恒压、避雷器 Over voltage protection, constant voltage, arrester		
手动功能 Manual function	风机手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	风机电压、电流、功率、太阳能板电压、电流、功率、蓄电池电压/DC电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 (可设置) PWM constant pressure voltage	>420Vdc	>510Vdc	>580Vdc
风力发电机三相卸荷动作电压1 (可设置) Wind turbine 3-phase load voltage1 (Settable)	435±5Vdc	515±5Vdc	590±5Vdc
风力发电机三相卸荷动作电压2 (可设置) Wind turbine 3-phase load voltage 2 (Settable)	-----	-----	595±5Vdc
风力发电机三相卸荷动作电压3 (可设置) Wind turbine 3-phase load voltage 3 (Settable)	-----	-----	600±5Vdc
风力发电机恢复充电动作电压 Wind turbine Recharging voltage	405±5Vdc	480±5Vdc	550±5Vdc
太阳能停止充电电压 Solar panels stop charging voltage	435±5Vdc	515±5Vdc	600±5Vdc
太阳能恢复充电电压 Solar panels recharge voltage	405±5Vdc	480±5Vdc	550±5Vdc
蓄电池欠压指示 Low-voltage of the battery	300±5Vdc	350±5Vdc	400±5Vdc
直流电压输出 (连接并网逆变器) DC output voltage (connect on grid inverter)	0-435Vdc	0-520Vdc	0-600Vdc
PWM 卸荷连接线 PWM dump load self-provided connect wire	>10mm <sup>2</sup>	>10mm <sup>2</sup>	>16mm <sup>2</sup>
自备三相卸荷连接线 3-phase dump load self-provided connect wire	>10mm <sup>2</sup>	>10mm <sup>2</sup>	>10mm <sup>2</sup>
自备蓄电池连接线 Battery self-provided connect wire	>16mm <sup>2</sup>	>20mm <sup>2</sup>	>25mm <sup>2</sup>
PWM 保险 PWM fuse	40A	80A	100A
*太阳能保险 Solar fuse	20A	32A	63A
充电保险 Charging fuse	80A	125A	160A
工作温度 Work environment temperature	-30-60°C	-30-60°C	-30-60°C
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C, 精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	650*500*240	650*500*240	500*500*900
控制器重量 Weight of the controller	40 Kg	40 Kg	55 Kg
卸荷器尺寸 Size of the dump load (mm)	720*500*1030	720*500*1030	720*500*1300
卸荷器重量 Weight of the dump load	75Kg	75 Kg	110 Kg

Above parameter only for reference, could be custom made to user specifications. 以上技术参数仅供参考, 可根据用户技术参数定制。

FKJ-W 型 水力发电机控制器特性

- ◆ 本产品依照JB/T6939.1-2004号行业标准, GB/T19115.1-2003号国家标准生产, 也可根据用户技术要求生产。
- ◆ 大屏LCD显示。图形直观显示控制器工作状态。丰富的数据显示: 实时发电机电压、电流、功率, 太阳能板电压、电流、功率, 蓄电池电压、充电电流 (主板自带电池, 在断电情况下, 可存储30天历史数据。)
- ◆ 采用两套控制系统, PWM恒压系统 + 三相卸荷系统。
- ◆ PWM恒压控制是发电机额定功率的120%。当超PWM恒压功率范围时, 三相卸荷立即自动启动, 保证发电整套系统安全运行。
- ◆ PWM控制。在大水流情况下, 离网型控制器保证发电机对蓄电池恒压、恒流充电; 并网型控制器保证发电机恒压输出。
- ◆ 并网型控制器在网电断电或并网逆变器故障时, 控制发电机制动。
- ◆ 离网型控制器具有蓄电池防反接保护, 蓄电池防脱节保护, 蓄电池防损坏保护, 蓄电池过充保护。蓄电池自动恢复充电功能。
- ◆ 控制器具有手动三相卸荷开关, 用户可根据情况使用。使用此开关, 发电机将强制性三相卸荷。
- ◆ 控制器内部设有防雷器。把窜入风力发电机电力线的瞬时过电压限制在设备或系统所能承受的电压范围内, 或将强大的雷电流泄流入地, 保护设备不受雷电冲击而损坏。

FKJ-W model Hydroelectric controller Product Characteristics

- ◆ The product is manufactured according the JB/T6939.1-2004 industrial standard and GB/T 19115.1-2003 national standard also with users' technical requirements.
- ◆ Big LCD display.The images tell working state visually.Various data show: real-time generator voltage,current,power;solar panel voltage,current, power;battery group voltage, charge current.(The main board is with button battery,in case of power failure, his tory data can be saved for 30 days)
- ◆ Two sets of control systems : PWM constant voltage system and three-phase dump load system.
- ◆ PWM constant voltage control is 120% of the rated power of the generator. In case exceeding of PWM' s capacity, the three-phase dump load will automatically start immediately to ensure safe running of the overall generator system.
- ◆ PWM function: when the strong water , off grid controller control generator charged battery by the constant voltage and current. On grid controller control generator output constant voltage.
- ◆ On grid controller. When no net electrical power or grid inverter fault control generator braked.
- ◆ Off grid controller the protection function of battery: polarity reverse protection, disconnection and damage protection, over-charging protection, auto recharge battery.
- ◆ The controller is equipped with manual three-phase dump load switch. To using this switch, the generator will carry out three-phase dump load forcibly.
- ◆ The inside of the controller is equipped with surge arrester. Contain the over voltage into the generator under the bearable voltage of the equipment or system. On the other way, to conduct the strong lightening current into the earth directly to avoid any damage of equipment.



## 水力发电机控制器 Hydroelectric Controller



## 离网水力发电机控制器技术参数5KW

### Technical parameters of off grid hydroelectric controller 5KW

规格 Type	5KW-48Vdc	5KW-120Vdc	5KW-240Vdc
发电机额定功率 Wind turbine rated power	5KW	5KW	5KW
发电机最大功率 Wind turbine max. power	10KW	10KW	10KW
*太阳能板功率 Solar panel power	1.5KWp	1.5KWp	1.5KWp
蓄电池额定电压 Battery	48Vdc	120Vdc	240Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	发电机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Generator voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 PWM constant pressure voltage(可设置 Settable)	>58Vdc	>145Vdc	>290 Vdc
发电机三相卸荷动作电压 (可设置) Generator 3-phase dump load voltage(Settable)	60±1Vdc	150±2Vdc	300±5Vdc
发电机恢复充电动作电压 Generator recharge voltage	54±1Vdc	135±2Vdc	280±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	60±1Vdc	150±2Vdc	300±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	54±1Vdc	135±2Vdc	280±5Vdc
*柴油发电机启动电压 Diesel generator starting voltage	40±1Vdc	100±2Vdc	200±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	54±1Vdc	135±2Vdc	270±5Vdc
自备蓄电池连接导线 Self-provided battery connecting wire	>20mm <sup>2</sup>	>10mm <sup>2</sup>	>6mm <sup>2</sup>
PWM 保险 PWM fuse	125A	50A	32A
*太阳能保险 Solar fuse	40A	16A	10A
充电保险 Charging fuse	160A	63A	40A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸/重量 Controller Size (mm) Weight (kg)	580*400*240 23Kg	510*360*240 17Kg	510*360*240 17Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	600*450*380 28Kg	600*450*380 28Kg	600*450*380 28Kg

## 离网水力发电机控制器技术参数10KW

### Technical parameters of off grid hydroelectric controller 10KW

规格 Type	10KW-120Vdc	10KW-220Vdc	10KW-240Vdc
发电机额定功率 Generator rated power	10KW	10KW	10KW
发电机最大功率 Generator max. power	20KW	20KW	20KW
*太阳能板功率 Solar panel power	3KWp	3KWp	3KWp
蓄电池额定电压 Battery	120Vdc	220V	240V
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output		
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester		
手动功能 Manual function	手动刹车 Manual brake		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	发电机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Generator voltage, current, power; solar panel voltage, current, power; battery voltage, charge current		
PWM 恒压电压 PWM constant pressure voltage(可设置 Settable)	>145Vdc	>260Vdc	>290 Vdc
发电机三相卸荷动作电压 (可设置) Generator 3-phase dump load voltage(Settable)	150±2Vdc	270±2Vdc	300±5Vdc
发电机恢复充电动作电压 Generator recharge voltage	135±2Vdc	245±2Vdc	280±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	150±2Vdc	265±2Vdc	300±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	135±2Vdc	<250Vdc	<290Vdc
*柴油发电机启动电压 Diesel generator starting voltage	100±2Vdc	180±2Vdc	200±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	135±2Vdc	245±2Vdc	270±5Vdc
自备蓄电池连接线 Self-provided battery connecting wire	>12mm <sup>2</sup>	>18mm <sup>2</sup>	>12mm <sup>2</sup>
PWM 保险 PWM fuse	125A	80A	63A
*太阳能保险 Solar fuse	32A	16A	16A
充电保险 Charging fuse	160A	120A	100A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 ( 室内 Indoor ) IP65 ( 户外 Outdoors )		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 ( 可选 ) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 ( 可选 ) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 ( 可选 ) Temperature compensation (optional)	-4mw/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸/重量 Controller Size (mm) Weight (kg)	580*400*240 24 Kg	580*400*240 24Kg	580*400*245 24Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	700*450*530 37 Kg	700*450*530 37Kg	700*450*530 37Kg

## 离网水力发电机控制器技术参数20KW-30KW

### Technical parameters of off grid hydroelectric controller 20-30KW

规格 Type	20KW-420Vdc	30KW-420Vdc
发电机额定功率 Generator rated power	20KW	30KW
发电机最大功率 Generator max. power	40KW	50KW
*太阳能板功率 Solar panel power	6KWp	9KWp
蓄电池额定电压 Battery	420Vdc	420Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output	
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester	
手动功能 Manual function	手动刹车 Manual brake	
显示 Display mode	液晶显示 LCD+LED	
显示内容 Display content	发电机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压、充电电流 Generator voltage, current, power; solar panel voltage, current, power; battery voltage, charge current	
PWM 恒压电压 PWM constant pressure voltage(可设置 Settable)	> 507Vdc	> 507Vdc
发电机三相卸荷 1 动作电压 (可设置) Generator 3-phase dump load 1 voltage(Settable)	520±5Vdc	520±5Vdc
发电机三相卸荷 2 动作电压 (可设置) Generator 3-phase dump load 2 voltage(Settable)	525±5Vdc	525±5Vdc
发电机恢复充电动作电压 Generator recharge voltage	475±5Vdc	475±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	520±5Vdc	520±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	475±5Vdc	475±5Vdc
*柴油发电机启动电压 Diesel generator starting voltage	350±5Vdc	350±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	475±5Vdc	475±5Vdc
自备三相卸荷连接线 Self-provided 3phase dump load connecting wire	> 6mm <sup>2</sup>	> 10mm <sup>2</sup>
自备蓄电池连接线 Self-provided battery connecting wire	> 12mm <sup>2</sup>	> 20mm <sup>2</sup>
PWM 保险 PWM fuse	80A	100A
*太阳能保险 Solar fuse	20A	32A
充电保险 Charging fuse	125A	180A
工作温度 Work environment temperature	-30-60°C	
相对湿度 Relative humidity	<90% 不结露 <90% No condensation	
噪音 (1m) Noise (1m)	<40dB	
防护等级 Degree of protection	IP20 ( 室内 Indoor ) IP65 ( 户外 Outdoors )	
制冷方式 Cooling method	强制风冷 Forced air cooling	
*可增加控制功能 ( 可选 ) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake	
*远程通讯 ( 可选 ) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet	
*温度补偿 ( 可选 ) Temperature compensation (optional)	-4mw/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C	
控制器尺寸/重量 Controller Size (mm) Weight (kg)	500*500*900 58 Kg	600*500*1200 95 Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	720*500*1030 90Kg	720*500*1300 110 Kg

## 离网水力发电机控制器技术参数50-100KW

### Technical parameters of off grid hydroelectric controller 50-100KW

规格 Type	50KW-420Vdc	100KW-420Vdc
发电机额定功率 Generator rated power	50KW	100KW
发电机最大功率 Generator max. power	80KW	200KW
*太阳能板功率 Solar panel power	15KWp	30KWp
蓄电池额定电压 Battery	420Vdc	420Vdc
功能 Function	整流、充电、控制、*直流输出 Rectifier,charge, control, *DC output	
自动保护功能 Automatic protection function	过压保护、恒压充电、避雷器 Over voltage protection, constant voltage charge, arrester	
手动功能 Manual function	手动刹车 Manual brake	
显示 Display mode	液晶显示 LCD+LED	
显示内容 Display content	发电机电压、电流、功率、蓄电池电压、充电电流 Generator voltage, current, power; battery voltage, charge current	
PWM 恒压电压1 PWM constant pressure voltage1(可设置 Settable)	> 507Vdc	> 507Vdc
PWM 恒压电压2 PWM constant pressure voltage2(可设置 Settable)	-----	> 507Vdc
发电机三相卸荷1动作电压(可设置) Generator 3-phase dump load 1 voltage(Settable)	515±5Vdc	515±5Vdc
发电机三相卸荷2动作电压(可设置) Generator 3-phase dump load 2 voltage(Settable)	520±5Vdc	520±5Vdc
发电机三相卸荷3动作电压(可设置) Generator 3-phase dump load 3 voltage(Settable)	525±5Vdc	525±5Vdc
发电机恢复充电动作电压 Generator recharge voltage	475±5Vdc	475±5Vdc
*太阳能停止充电电压 Solar control stop charging voltage	520±5Vdc	520±5Vdc
*太阳能恢复充电电压 Solar control recharge voltage	475±5Vdc	475±5Vdc
*柴油发电机启动电压 Diesel generator starting voltage	350±5Vdc	350±5Vdc
*柴油发电机关闭电压 Diesel generator off voltage	475±5Vdc	475±5Vdc
自备三相卸荷连接线 Self-provided 3phase dump load connecting wire	> 16mm <sup>2</sup>	> 32mm <sup>2</sup>
自备蓄电池连接线 Self-provided battery connecting wire	> 30mm <sup>2</sup>	> 60mm <sup>2</sup>
PWM 保险 PWM fuse	100A	63A*2
*太阳能保险 Solar fuse	50A	80A
充电保险 Charging fuse	200A	315A
工作温度 Work environment temperature	-30~60°C	
相对湿度 Relative humidity	< 90% 不结露 < 90% No condensation	
噪音 (1m) Noise (1m)	< 40dB	
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)	
制冷方式 Cooling method	强制风冷 Forced air cooling	
*可增加控制功能(可选) Extral Control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake	
*远程通讯(可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet	
*温度补偿(可选) Temperature compensation (optional)	-4mw/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C	
控制器尺寸/重量 Controller Size (mm) Weight (kg)	600*500*1200 110 Kg	600*500*1200 120Kg
卸荷器尺寸/重量 Dump load Size (mm) Weight (kg)	720*500*1300 110 Kq 700*450*530 39 Kq	720*500*1300 110 Kq 720*500*1300 110 Kq

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制



## 并网水力发电机控制器5KW-10KW

### On Grid Hydroelectric Controller 5KW-10KW



## 并网水力发电机控制器技术参数5KW-10KW

### Technical Parameters of the On Grid Hydroelectric Controller 5KW-10KW

规格 Type	FKJ-WGT5KW	FKJ-WGT5KW	FKJ-WGT10KW
发电机额定功率 Generator rated power	5KW	5KW	10KW
发电机最大功率 Generator Max. power	10KW	10KW	20KW
发电机额定电压 Generator rated voltage	AC220V	AC380-400V	AC380-400V
*太阳能板功率 (可选) Solar panels power (optional)	1.5KW	1.5KW	3KW
功能 Function	整流、控制、直流输出 Rectifier, control, DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、逆功率 Over voltage protection, network electric cut off protection, regulated supply output, arsester		
手动功能 Manual function	手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	发电机电压、电流、功率, 太阳能电压、电流、功率, 直流输出电压, 直流输出电流, 直流输出功率, 累计功率 Generator voltage, current, power; Solar voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
PWM 恒压电压 PWM constant voltage (可设置 Settable)	≥320dc	≥520dc	≥520dc
发电机三相卸荷动作电压(可设置) Generator 3-phase dump load voltage (Settable)	350±5Vdc	540±5Vdc	540±5Vdc
发电机三相卸荷延时 Generator 3-phase dump load time-lapse	12-20 min	12-20 min	12-20 min
*太阳能保险 Solar panels fuse	5A	5A	8A
PWM 卸荷保险 PWM dump load fuse	25A	16A	32A
直流输出保险 Fuse of DC output	32A	20A	40A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20(室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethemet		
*温度补偿 (可选) Temperature compensation(optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	510*360*240	510*360*240	580*400*240
控制器重量 Weight of the controller	18Kq	18Kq	23Kq
卸荷器尺寸 Size of the dump load (mm)	600*450*380	600*450*380	690*450*530
卸荷器重量 Weight of the dump load	28Kq	28Kq	35Kq

\*Above parameter only for reference

1. Could be custom made to user specifications. 2. Could have solar power control subject to user demand.

\*以上技术参数仅供参考

1.可依照用户技术参数定制 2.可根据用户需要增加太阳能板功率

## 并网水力发电机控制器技术参数15KW-30KW

### Technical Parameters of the On Grid Hydroelectric Controller 15KW-30KW

规格 Type	FKJ-WGT15KW	FKJ-WGT20KW	FKJ-WGT30KW
发电机额定功率 Generator rated power	15KW	20KW	30KW
发电机最大功率 Generator Max. power	30KW	40KW	60KW
发电机额定电压 Generator rated voltage	AC380V-400V	AC380V-400V	AC380V-400V
功能 Function	整流、控制、直流输出 Rectifier,control,DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、逆功率 Over voltage protection, network electric cut off protection, regulated supply output, arsester		
手动功能 Manual function	手动刹车、系统重启、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	发电机电压、电流、功率, 太阳能电压、电流、功率, 直流输出电压, 直流输出电流, 直流输出功率, 累计功率 Generator voltage, current, power; Solar voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
PWM 恒压电压 (可设置) PWM constant voltage (Settable)	≥520dc	≥520dc	≥520dc
发电机三相卸荷动作电压1 (可设置) Generator 3-phase dump load voltage1 (Settable)	540±5Vdc	540±5Vdc	540±5Vdc
发电机三相卸荷动作电压2 (可设置) Generator 3-phase dump load voltage2 (Settable)	-----	540±5Vdc	550±5Vdc
发电机三相卸荷2 延时 Time-lapse of the Generator 3-phase dump load2	12-20 min	12-20 min	12-20 min
PWM 卸荷保险 PWM dump load fuse	50A	63A	80A
直流输出保险 Fuse of DC output	63A	80A	100A
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20(室内 Indoor) IP65 (户外 Outdoors)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation(optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	580*400*240	650*600*240	650*600*240
控制器重量 Weight of the controller	25Kq	36Kq	38Kq
卸荷器尺寸 Size of the dump load (mm)	690*450*530	720*500*1300	720*500*1300
卸荷器重量 Weight of the dump load	41Kq	70Kq	80Kq

1. Could be custom made to user specifications. 2. Could have solar power control subject to user demand.

\*以上技术参数仅供参考

1.可依照用户技术参数定制 2.可根据用户需要增加太阳能板功率



## 并网水力发电机控制器50KW-200KW On Grid Hydroelectric Controller 50KW-200KW



## 并网水力发电机控制器技术参数50KW-200KW

### Technical Parameters of the On Grid Hydroelectric Controller 50KW-200KW

规格 Type	FKJ-WGT50KW	FKJ-WGT100KW	FKJ-WGT200KW
发电机额定功率 Generator rated power	50KW	100KW	200KW
发电机最大功率 Generator Max. power	100KW	200KW	300KW
发电机额定电压 Generator rated voltage	AC400V	AC400V	AC400V
功能 Function	整流、控制、直流输出； Rectifier, control, DC output		
自动保护功能 Automatic protection function	过压保护、网电断电保护、稳压输出、避雷器 Over voltage protection, network electric cut off protection, regulated supply output, arrester		
手动功能 Manual function	手动刹车、系统复位、应急开关 Manual brake, reset, emergency switch		
显示 Display mode	液晶显示 LCD+LED		
显示内容 Display content	发电机电压、电流、功率，太阳能电压、电流、功率，直流输出电压，直流输出电流，直流输出功率，累计功率 Generator voltage, current, power; Solar voltage, current, power; DC output voltage, DC output current, DC output power, total power.		
PWM 恒压电压 PWM constant voltage1 (可设置 Settable)	≥560Vdc	≥560Vdc	≥560Vdc
PWM 恒压电压 PWM constant voltage2 (可设置 Settable)	-----	≥560Vdc	≥560Vdc
PWM 恒压电压 PWM constant voltage3 (可设置 Settable)	-----	-----	≥560Vdc
发电机三相卸荷动作电压 1 (可设置) Generator 3-phase dump load voltage1(Settable)	580±5Vdc	580±5Vdc	580±5Vdc
发电机三相卸荷延时 1 three-phase dump load 1 delay time	12-20 min	12-20 min	12-20 min
发电机三相卸荷动作电压 2 (可设置) Generator 3-phase dump load voltage2(Settable)	600±5Vdc	600±5Vdc	600±5Vdc
发电机三相卸荷延时 2 Generator three-phase dump load 2 delay time	12-20 min	12-20 min	12-20 min
发电机三相卸荷动作电压 3 (可设置) Generator 3-phase dump load voltage3(Settable)	-----	600±5Vdc	600±5Vdc
发电机三相卸荷延时 3 Generator three-phase dump load 3 delay time	-----	12-20 min	12-20 min
PWM 卸荷保险 PWM dump load fuse	100A	63A*2	63A*3
直流输出保险 Fuse of DC output	160A	250A	450A
自备 PWM 卸荷连接线 Connecting wire of the PWM dump load	>20mm <sup>2</sup>	>15mm <sup>2</sup>	>15mm <sup>2</sup>
自备三相卸荷连接线 Connecting wire of the dump load	>12mm <sup>2</sup>	>16mm <sup>2</sup>	>20mm <sup>2</sup>
工作温度 Work environment temperature	-30-60°C		
相对湿度 Relative humidity	<90% 不结露 <90% No condensation		
噪音 (1m) Noise (1m)	<40dB		
防护等级 Degree of protection	IP20 (室内 Indoor)		
制冷方式 Cooling method	强制风冷 Forced air cooling		
*可增加控制功能 (可选) Extral control function is (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake		
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet		
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C,精度 Accuracy:±1°C		
控制器尺寸 Size of the controller (mm)	600*500*1200 mm	600*500*1200 mm	600*500*1200 mm
控制器重量 Weight of the controller	94Kg	96Kg	96Kg
卸荷器尺寸 Size of the dump load (mm)	720*500*1300	720*500*1300(2pcs)	720*500*1300(2pcs)
卸荷器重量 Weight of the dump load	107Kg	107Kg*2	107Kg*2

\*Above parameter only for reference. Could be custom made to user specifications. \*以上技术参数仅供参考,可依照用户技术参数定制

## 风力发电机烧水控制器 | WTG PWM Water Heating Controller

### KJ-H型风力发电机烧水控制器产品特性

- ◆本产品参照JB/T6939.1-2004号行业标准，GB/T 19115.1-2003号国家标准生产，也可根据用户技术要求生产。
- ◆大屏LCD显示。图形直观显示控制器工作状态。丰富的数据显示：实时风机电压、电流、功率，太阳能板电压、电流、功率，蓄电池电压、充电电流（主板自带电池，在断电情况下，可存储30天历史数据。）
- ◆采用两套控制系统，PWM恒压系统 + 三相卸荷系统。
- ◆PWM恒压控制是风力发电机额定功率的120%。当超出PWM恒压功率范围时，三相卸荷立即启动运行，运行10-20分钟停止三相卸荷，风力发电机恢复供电，保证风力发电整套系统安全运行。
- ◆在大风、强风情况下，控制器恒压输出，保证烧水器正常工作。
- ◆当电网停电时，控制器三相卸荷自动启动，烧水器停止工作。待电网恢复供电时，控制器停止三相卸荷，烧水器恢复工作。
- ◆控制器内部设有防雷器。把窜入风力发电机电力线的瞬时过电压限制在设备或系统所能承受的电压范围内，或将强大的雷电流泄流入地，保护设备不受雷电冲击损坏。
- ◆控制器具有急停开关，遇紧急情况时，按下前面板急停按钮，控制器全部电源切断，风力发电机立即三相卸荷。
- ◆控制器具有手动三相卸荷开关，用户可根据情况使用。使用此开关，风力发电机将强制性三相卸荷。
- ※ 可根据客户需求增加太阳能电池板控制系统。
- ※ 可增加柴油机接口，自动控制柴油发电机启动和停机。
- ※ 采用Modbus通讯协议。方便客户进行二次开发。
- ※ 可通过RS485接口调整控制器的技术参数。方便专业客户针对不同的风力发电机作出调整。
- ※ 支持WIFI和GPRS。客户可通过PC端或移动端实时监控并网风力发电系统的工作状态，也可以查询历史工作状态。移动端兼容Android和os。
- ※ 控制器根据风力发电机的种类，可增加偏航控制、转舵控制、机械折尾控制、机械刹车、液压刹车、电磁刹车，等多种制动控制功能。

### FKJ-H model Wind Turbine Water Heating Controller Product Characteristics

- ◆ The product is manufactured according the JB/T6939.1-2004 industrial standard and GB/T 19115.1-2003 national standard also with users' technical requirements.
- ◆ Big LCD display.The images tell working state visually.Various data show: real-time windturbine voltage,current,power;solar panel voltage,current,power;battery group voltage, charge current.(The main board is with button battery,in case of power failure, historydata can be saved for 30 days)
- ◆ Two sets of control systems : PWM constant voltage system and three-phase dump load system.
- ◆ PWM constant voltage control is 120% of the rated power of the wind turbine. In case exceeding of PWM' s capacity, the three-phase dump load will automatically start immediately. After 10-20 minutes, the three-phase dump load will stop and the wind turbine will re-start to resume power supply to ensure the safe running of the overall wind turbine generation system.

- ◆ Under the strong or super-strong wind conditions, the controller can conduct constant voltage output to ensure the Water boiler safety running.
- ◆ The three-phase dump load of the controller will automatically start and the Water boiler will stop work when the power grid is off. As soon as the grid power resuming, the controller stops three-phase dump load and the Water boiler will resume work.
- ◆ The inside of the controller is equipped with surge arrester. Contain the over voltage into the wind turbine under the bearable voltage of the equipment or system. On another way, to conduct the strong lightening current into the earth directly to avoid any damage of equipment.
- ◆ The controller is equipped with emergency stop switch; in case of emergency, press down the emergency stop button in the front panel to cut off all power supply of the controller and the wind turbine will immediately carry out three-phase dump load.
- ◆ The controller is equipped with manual three-phase dump load switch. To using this switch, the wind turbine will carry out three-phase dump load forcibly.
- ※ Solar panel control system is optional.Based on customers' requirement.
- ※ Disel generator port is optional.Control the generator start and stop automatically
- ※ Adopt Modbus Communication protocol. Convenient to carry out the secondary development.
- ※ Adjusting the technical specification via RS485 is available.Convenient to adjust the different wind turbines for professional customers.
- ※ Support WIFI and GPRS.Customers can monitor the real-time working state of the on grid wind power system via PC and mobile and query history working sate.Both Android and OS are compatible in Mobile.
- ※ For the different wind turbine, the controller can be equipped with mechanical yawing, Rotate tail control, furred empennage, mechanical brake, hydraulic brake, electromagnetism brake and other brake functions.



风力发电机烧水控制器  
WTG PWM Water Heating Controller



风力发电机烧水控制器技术参数

Technical Parameters of the FKJ-H Wind Turbine Water Heating Controller

规格 Type	1.5KW	2KW	3KW	5KW	10KW
风力发电机额定功率 Wind turbine rated power	1.5KW	2KW	3KW	5KW	10KW
风力发电机最大功率 Wind turbine max. power	3KW	4KW	6KW	10KW	20KW
供电方式(可选) Power supply mode (Optional)	蓄电池 Battery 24Vdc 7Ah-15 Ah 电网 Grid 110V/120V/220V/230V 50HZ/60HZ				
功能 Function	整流、控制、烧水、*充电 Rectifier, control, water heating, *charge				
自动保护功能 Automatic protection function	过压保护、恒压、避雷器 Over voltage protection, constant voltage, arrester				
手动功能 Manual function	风机手动刹车 Manual brake				
显示 Display mode	液晶显示 LCD+LED				
显示内容 Display content	风机电压、电流、功率,太阳能板电压、电流、功率,蓄电池电压/DC电压、充电电流 Wind turbine voltage, current, power; solar panel voltage, current, power; battery voltage, charge current				
烧水控制器开始烧水动作电压 (可设置) WTG start water heating voltage(Settable)	>200Vdc	>200Vdc	>200Vdc	>300Vdc	>180Vdc
烧水控制器停止烧水动作电压 (可设置) WTG stop water heating voltage(Settable)	240±2Vdc	240±2Vdc	240±2Vdc	460±2Vdc	245±2Vdc
风力发电机刹车动作电压 (可设置) WTG braking voltage(Settable)	240±2Vdc	240±2Vdc	240±2Vdc	460±2Vdc	245±2Vdc
保险 Insurance	10A	10A	20A	16A	63A
工作温度 Work environment temperature	-30~60°C				
相对湿度 Relative humidity	<90% 不结露 <90% No condensation				
噪音 (1m) Noise (1m)	<40dB				
防护等级 Degree of protection	IP20 (室内 Indoor) IP65 (户外 Outdoors)				
制冷方式 Cooling method	强制风冷 Forced air cooling				
*可增加控制功能 (可选) Extral control function (optional)	偏航、变桨、机械刹车、液压刹车、电磁刹车 Yawing, variable pitch, mechanical brake, hydraulic brake, electromagnetism brake				
*远程通讯 (可选) Communication interface (optional)	RS485/USB/GPRS/WIFI/Ethernet				
*温度补偿 (可选) Temperature compensation (optional)	-4mv/°C/2V, -35°C~+80°C, 精度 Accuracy:±1°C				
控制器尺寸 Size of the controller (mm)	510*360*240			510*360*240	580*400*240
控制器重量 Weight of the controller	17Kg			19Kg	23Kg
卸荷器尺寸 Size of the load (mm)	-----			490*450*320	730*420*210
卸荷器重量 Weight of the load	-----			15Kg	19Kg

\*以上技术参数仅供参考,可依照用户技术参数定制



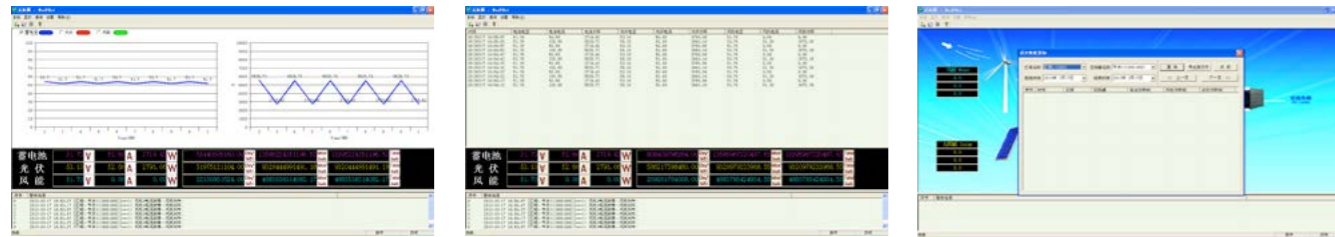
# 案例



## 监控软件 | Monitoring software

- 1 当前发电功率、日发电量累计、月发电量累计、总发电量累计。
- 2 系统详细运行参数。
- 3 故障记录及报警。

- 1 Generated energy (every day, every month, every year)
- 2 Detailed movement system paramter.
- 3 The fault records and alarm.



## Deming App

Deming APP智能终端是为风光互补电站、光伏电站设计的监控和管理系统。它帮助用户掌握电站运行状态，随时随地实现风光互补电站、光伏电站的远程数据监控，确保方便管理和监视及时性。通过视觉系统显示电站运行数据表，包括电站设备运行状态、设备实时数据、历史数据查询。作为时尚和智能应用程序，它可以让用户在任何场合展示他的电站。

Deming APP is intelligent terminal for hybrid wind solar power, PV power station monitoring and management person. It help user master power station running status at anytime and anywhere, realize remote data monitoring of hybrid wind solar power and PV power station, ensure convenient management and monitoring timeliness. System displays hybrid wind solar power station and PV power station running data by visual table, includes power station power generation, benefit, CO2 emission reduction benefit, equipment running status, equipment real-time data, history data query, power generation comparison, equipment performance comparison. As fashion and intelligent application, it can let user demonstrate his hybrid wind solarpower station and PV power station at any occasion, user has intuitive feeling, enhance user confidence.

- 丰富的数据输出界面，支持Android、iphone、ipad、windows、macOS  
Various data output interface, support Android、iphone、ipad、windows、macOS
- 精准数据，易操作，支持下载和安装，可捆绑微信，实时监控，数据同步  
Delicate and precise data, easy to operate, download and install, Wechat binded, real-time monitoring, data synchronization
- 24小时监控 24-hour monitoring
- 低运营成本 Low maintenance cost
- 电站信息共享功能 Power station information sharing function

## 可选备件 | Optional Parts



1. RS485转WIFI  
RS485 to WIFI



2. RS485转GPRS  
RS485 to GPRS



3. RS485转以太网  
RS485 to Ethernet



4. RS485转USB  
RS485 to USB



5. 温度补偿  
Temperature compensation





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