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Performance

- Design for off-grid wind/solar hybrid street light system.
- Integrated design of wind controller and solar controller.
- Applicable to different kinds of batteries.
- PWM step-less unload mode, which burn the excess power into mosfet, making the battery charging in best status.
- Digital intelligent control, with powerful imported MCU control as the core device .To ensure Simple peripheral circuit structure, and more flexible and powerful control method and control strategy.
- Modular design with simple structure and easy maintenance.
- LCD display function, visually display wind power , wind voltage , wind current , wind turbine speed ,PV power , PV voltage , PV current , battery voltage , battery power ,charge current .over voltage ,under voltage ,over load, short circuit , night mode, DC output modes etc.
- Perfect protection function: Solar reverse charge protection, Solar reverse connection protection, Battery overcharge protection, Battery over current protection, Battery reverse connection protection, Open battery protection ,Wind turbine automatic brake and manual brake, over load protection and short circuit protection, thus the system has higher reliability.

- Impedance matching self-adaption: Due to internal resistance of wind turbine, battery, load, According to the impedance matching principle, the wind turbine will have maximum power utilization rate and maximum power output only when the input impedance equals to output impedance, with impedance matching self-adaption .This controller enhances energy efficiency.

- Combine the wind turbine open circuit with dump load ,over rotational speed, over voltage, over current limitation
- When the total current of wind and solar is higher than limit current point or battery is full, The PWM duty cycle of controller will be decreased until battery is fully charged. And then controller disconnects the charging loop, the wind turbine will
- Be on no-load operation. In order to prevent wind turbine from propeller racing .This controller is designed with over-current and over-voltage limit, Controller will automatically start PWM voltage intelligent dump-load function once wind turbine rotation speed or wind turbine voltage is more than setting point. So avoid wind turbine constant working in dump-load status, and increase the controller service life.

- Maximum charging current limiting for battery, User can set the battery capacity and maximum charge current according to systems' exact configuration. To ensure the battery service life.

- Wind turbine and solar panel is intelligent complementary and independent charging Wind turbine and solar panel is intelligent complementary and independent charging. The solar panel adopts open circuit protection, and wind turbine adopts open circuit, over voltage, over rotation speed and over current protection .Ensures the service life of system components.

- The controller has two DC outputs specially designed for street light system. Each DC output has 9 modes of controlling output, including:
- light-control on and light-control off (L- On and L-Off)
- light-control on and time-control off (L-On and T-Off)
- time-control on and time-control off (T-Off and T-On)
- Constant on
- half –power light-control on and light-off (H-L-On and L-Off)
- half-power light-control on and time-control off (H-L-On and T-Off)
- half-power time-control on and time-control off (H-T-ON and T-Off)
- half-power constant on (H-Constant On)
- constant off

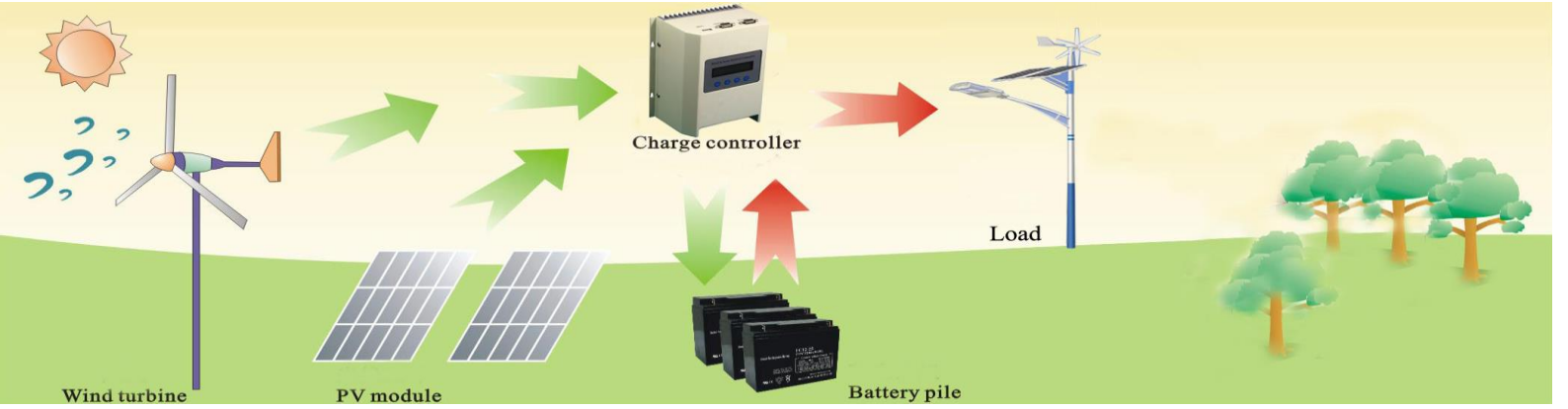
- Wind turbine charging able or enable by manual, Turn on or turn off the charging switch by manual, The wind charging is shut off if choose switch off, The wind charging is normal if choose switch on . To avoid sparks when connection the wind turbine to controller, User can choose switch off.

- Solar charging able or enable by manual, Turn on or turn off the charging switch by manual, The solar charging is shut off if choose switch off , The solar charging is normal if choose switch on .To avoid sparks when connection the solar panel to controller, User can choose switch off.

- Output able or enable by manual ,Turn on or turn off the switch by manual, The DC output will be shut off If choose switch off, The DC output is normal if choose switch on , To avoid sparks when connection the Loads to controller . User can choose switch off

Optional Functions

- Optional temperature compensation function.
- Optional Boost function.
- Optional Buck Function.
- Optional Buck & Boost Function.
- Optional RS232/RS485 to communicate with computer or USB data logging automatically.
- Optional Temperature Compensation Function



➢ Technical Specification

Item No.	TGWS900W-24V	TGWS900W-48V
Rated Battery Voltage	24V	48V
Rated Wind Turbine Power	600W	
Wind Turbine Maximum Input Power	900W	
Rated Solar Power	300W	
Maximum PV Input Voltage	160V	
Wind dumpload Voltage (Vmax)	30V (Adjustable)	60V (Adjustable)
Wind dumpload Rotate Speed (Rota)	500R (Adjustable)	
Wind Pole Logarithm (Pole)	10D (Adjustable)	
Wind Charging Range	DC (10V-30V)	DC (20V-60V)
Wind Start Charging Voltage (CutIn)	10V (Adjustable)	20V (Adjustable)
Under Voltage (Low)	20.4V (Adjustable)	40.8V (Adjustable)
Under Voltage Recovery Voltage (Rlow)	23.0V (Adjustable)	46.0V (Adjustable)
Float Voltage (Flot)	27.0V (Adjustable)	54.0V (Adjustable)
Over Voltage (Full)	29.4V(Adjustable)	58.8V(Adjustable)
Over Voltage Recovery Voltage (RFull)	26.4V (Adjustable)	52.8V (Adjustable)
Over-Load Voltage (Out)	35.0V (Adjustable)	70.0V (Adjustable)
Over-Load Recovery Voltage (Rout)	30.0V (Adjustable)	60.0V (Adjustable)
PV Voltage Of Light-Control On (Lon)	6V (Adjustable)	
PV Voltage Of Light-Control Off (Loff)	6V (Adjustable)	
Line 1 Rated Output Current	15A	
Line 2 Rated Output Current	15A	
Line 1 Output Mode(Factory Default)	Mode 1: (Light-control on and Light-control off)(Adjustable)	
Line 2 Output Mode(Factory Default)	Model 2: (Light-control on, Full power working for 5 hours ,Light-control off) (Adjustable)	
Dump load control mode	Over rotate speed limiting, Over voltage limiting, Over current limiting, PWM	
Wind Charging Mode	Low voltage charge function (Boost function)	
Solar Charging Mode	PWM	
Display Mode	LCD	
Display Parameters	**Battery :** Voltage , Charging Current , Percentage of battery power **Wind :** Voltage , Charging current , Rotate Speed , Output current, Output Power **Solar :** Voltage , Charging current **Loads :** Current , Power , Working mode **System :** State ,Generated energy , Erro code	
Working Temperature &Humidity	-20~+55°C/35~85%RH(Without Condensation)	
Quiescent Current	≤3W	
Protection Function	**Battery**: Over-discharge protection; Over-charge protection; Anti-reverse connection. **Wind**: Over rotate speed protection, Over voltage protection, Over current protection. **Loads**: Over-load protection	
Communication Function	RS232	
Controller Size (L*W*H)	203mm*152mm*97.4mm	
Package Size	290mm*170mm*190mm	
Net weight	2.5KG	
Gross Weight	3KG	