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DIMON ENERGY INFINITE WIND AND SOLAR

DIMON

TECHNOLOGY

DIMON ENERGY

DIMON Technoogy Ltd - ENERGY Factory is a high-tech manufacturer focused on design, production and application of high performance and reliable small wind turbine products. The factory was established in 2001 located in northern part of Guangzhou city, factory has 150 workers, and a 10 people R&D team dedicated in higher performance and reliability of the wind turbine. We owns 35 patent designs on wind turbine blade, slip ring, rotor structure, over-speed control system etc. Each and every component of the wind turbine is independently designed and manufactured in house. Our factory owns advanced wind turbine quality testing equipments and a strict quality control system, all products will go through 22 quality control processes all in our factory facility. All products has certificated with CE, ETL, RoHS and ANAB.

With over 12 years experience in production & application of wind & solar hybrid power system, DIMON Energy has developed over 20 different application fields of wind and wind solar hybrid system such as residential grid-tie power system, residential off-grid power system, stand-alone wind solar hybrid street lighting, wind solar hybrid powered telecom tower, wind solar hybrid powered monitoring system etc. Most of these applications have been widely applied around world and enjoyed a good reputation by its system quality, reliability and professional pre-sales and after-sales service of our team. Furthermore, all components of each system solutions are either developed by DIMON Energy or customized & optimized by supporting vendor according to our wind turbine special features or some specific project, this could maximize the system power production and also improves reliability and compatibility of the system. Our engineering team could provide whole system design and full construction support base on your specific requirements. We believe soon you will benefit from our professionalism.

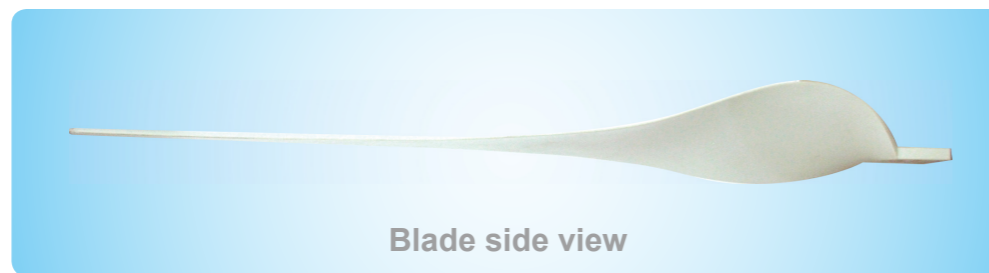
Content

- Wind power grid-tie system
- Wind solar hybrid off-grid power system
- Solar Street lighting
- Wind solar hybrid street lighting
- Other power system application

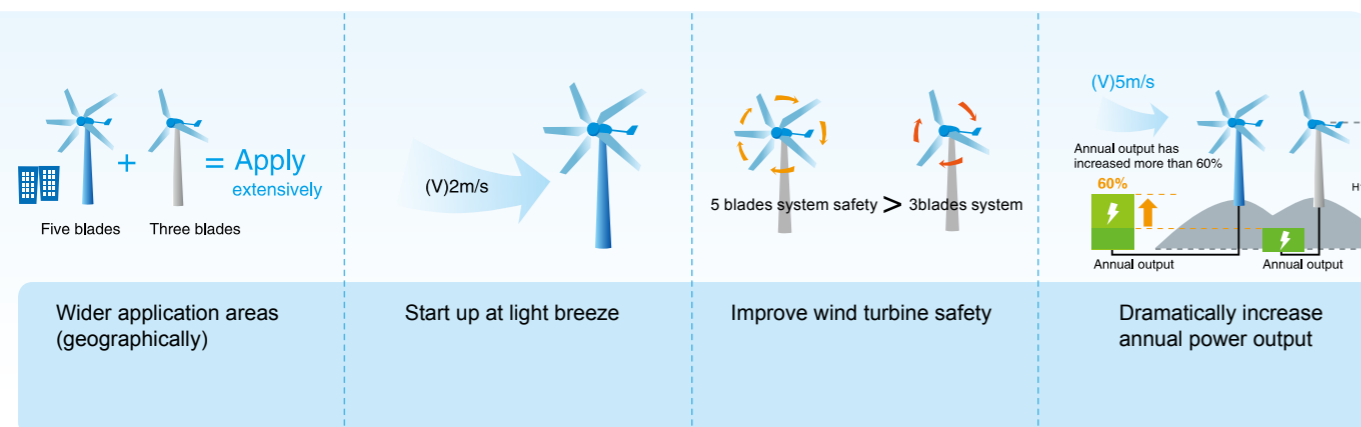
DIMON Small Wind Turbine Special Features

Patented Blade Design

Patented aerofoil 5 blade design with true symmetrical and twisted aerodynamic design which ensures rotor capture maximum power from wind ($C_p > 0.35$ in low wind) and operates in amazingly low noise and minimal vibration.



- True symmetrical and balanced aerofoil blade ensure rotor matching with generator perfectly
- Large ratio of tip section chord to root section chord and variable chord airfoil blade ensures rotor start-up easily and running smoothly with high torque & RPM at lower wind condition
- Aerodynamic blades designed with over-speed braking system to make sure generator well protected in higher wind.
- Reinforced nylon glass-fiber using advanced thermoplastic engineering and precision injection molding technology for higher strength, flexibility and reliability.
- $C_p > 0.35$ at low wind



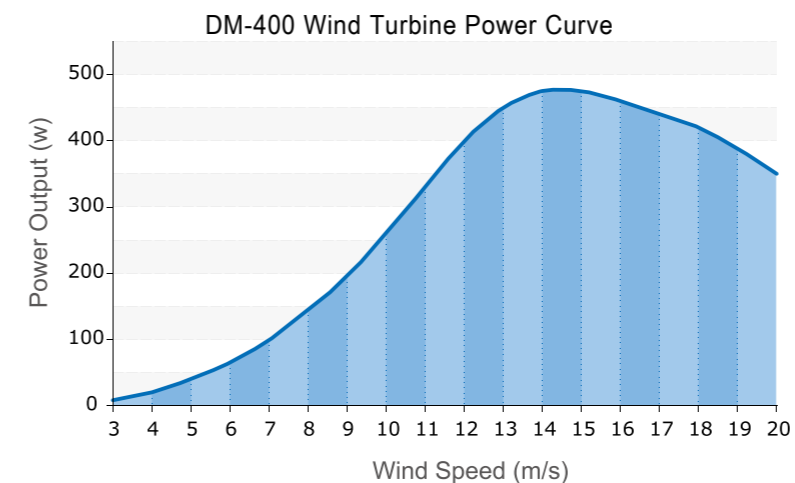
Over-speed Control System

Smart Blade Aerodynamics Braking and Electromagnetic Speed Limitation



Abandoned the traditional failure-prone mechanical furling system, the blade itself is designed with over-speed braking system which will generate a reverse reluctant torque to lower the blade rotation speed so that the blades and generator can be well protected in higher wind, it solved safety and reliability problems facing by most small wind turbines.

Combination of Electromagnetic braking and aerodynamic braking maximizes energy capture by extending turbine's operating speed range into higher and lower wind speed which are missed by the old style wind turbines.



This power curve generated by wind tunnel testing indicated that the blade aerodynamics braking system starts to take effect from 14-15m/s wind speed, the rotor RPM is always limited within wind turbine rated maximum RPM at even higher wind.

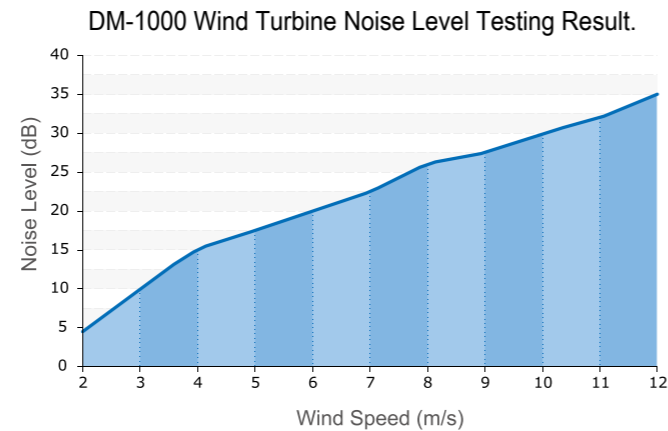
Minimal Vibration and Low Noise Operation



Wind turbine with minimal vibration and low noise could be mounted on rooftop safely and its operation won't affect resident.

Everything with moving parts will make some noise and vibration, and wind turbines are no exception, most noise and vibration are caused by turbine blades rotation in the wind and generator resonates with rotor and tower, DIMON Energy well designed wind turbine could works quietly in both low and high wind.

- The blades have exceptional consistency and aerodynamic outline with a mass distribution which ensures the rotor operate with minimal vibration and very low noise.
- Perfectly matched rotor and generator cause much less resonance of wind turbine and tower.
- Blade Aerodynamics Braking limits blade to rotate at rated RPM which could avoid higher noise and vibration caused by extreme wind.

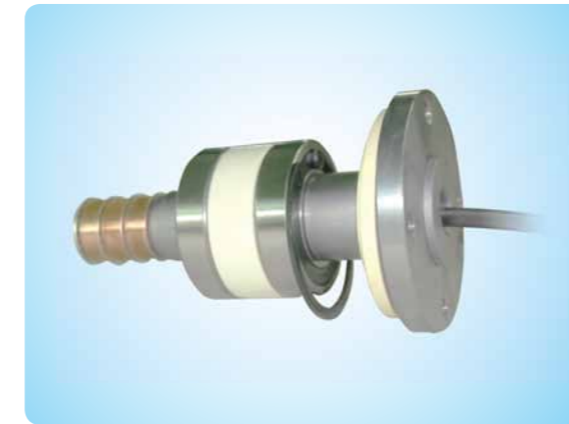


Maintenance Free Design



Innovative two-moving-part system

Typical wind turbine has three moving parts(rotor, head yawing and mechanical furling), DIMON Energy replaced mechanical furling by using advanced electromagnetic and blade aerodynamics braking and take only two moving parts, which improves generator reliability dramatically as it has less mechanical failure.



Innovative slip ring design

Wind turbines with typical slip ring design often twists and tangles the connection cable from generator to controller, which made the system has to be maintained every few month. DIMON Energy patented slip ring design solved this problem completely and made The wind turbine with higher reliability and real maintenance free.

Best Material and Workmanship

Rotor and housing

Patented rotor is made of high quality stainless steel rotor shaft attached with permanent neodymium magnet, the unique winding and multi pole design reduces the start-up torque of alternator which assures generator would produce more power at lower wind condition than other system.



Generator housing is made of precisely casted aluminum alloy with minimal tolerance and sealed with high quality sealant, this is why the wind turbine could work normally under various working conditions, and this is why the wind generator features class B insulation and IP56 class protection. Besides, the generator system is designed with a sufficient buffer of overload to ensure overall wind turbine reliability.



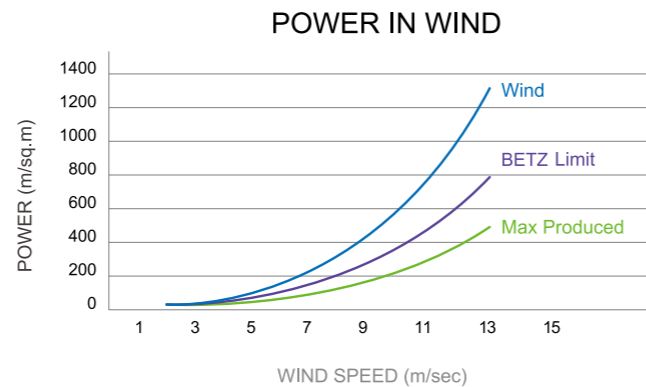
Blade

Blades are made from reinforced nylon glass-fiber by using advanced thermoplastic engineering and precision injection molding technology for higher strength, flexibility and reliability.



DIMON High Efficiency Wind Turbines

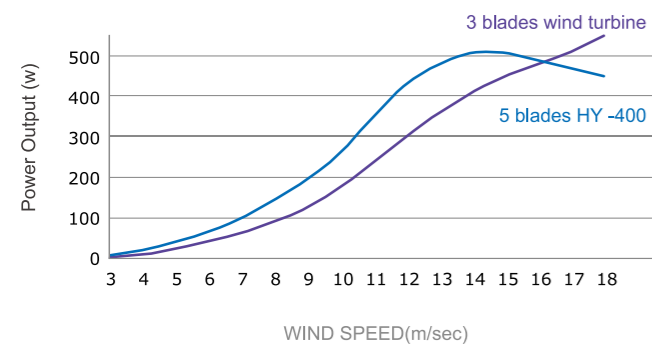
With DIMON R&D team efforts and years of technology accumulation and fine workmanship, the wind 6th generation wind turbines proved an excellent performance, durability and reliability, following generator efficiency testing result shows what the turbine is capable of and we expect you could start to test our wind turbine yourself. Results speak themselves!



Wind – shows power in the wind watt per square meter
 BETZ limit – shows the theoretical maximum power could be captured from wind
 Max produced – shows maximum power a wind generator could generate from wind

Power output chart

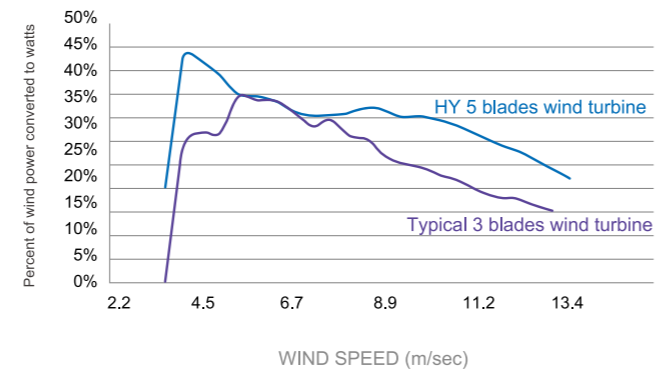
5 BLADES & 3 BLADES WIND TURBINE POWER OUTPUT COMPARISON



5 blades DM-400 power curve shows excellent power output performance at lower wind speed, and the blades aerodynamics braking system starts to protect wind turbine from 14-15m/s wind speed

Typical 3 blades wind turbine generates lower power at low wind speed and no protection for wind turbine at higher wind speed, wind turbine may break down if dump loader doesn't work properly.

5 BLADES & 3 BLADES WIND TURBINE EFFICIENCY COMPARISON



DM 5 blades wind turbine shows excellent wind power utilizing efficiency at lower wind (more than 40%), and also good performance at higher wind because smart blade aerodynamic braking could limit rotor speed within its rated RPM to keep generating power in higher wind.

Typical 3 blades wind turbine captures much less power from wind at lower wind speed, and wind power efficiency drops in higher wind because dump loader or mechanical furling braking system intermittently limits rotor speed in constantly changing wind, which results in average efficiency drop.

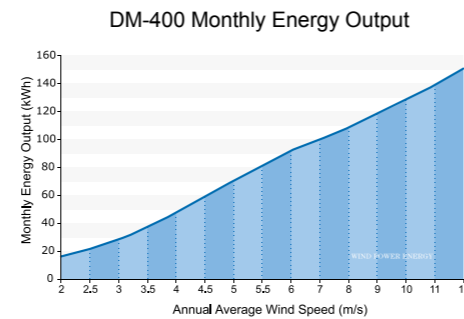
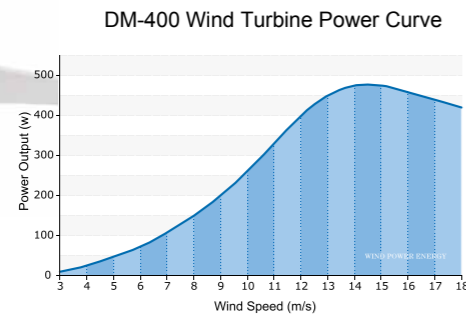
DIMON Wind Turbine Structure and Special Features



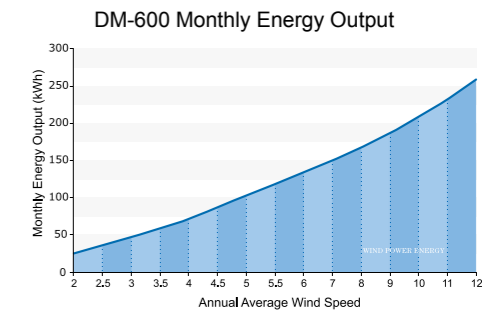
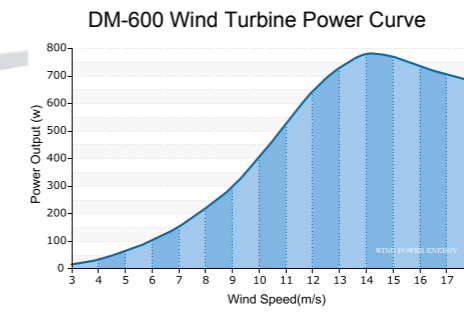
Product Special Features

- High Efficiency
- Light Breeze Start Up
- Long Lifetime, Free of Maintenance
- Light Weight, Easy Installation
- Heavy Wind Self-protection
- Minimal Vibration and Low Noise Operation
- Anti-rust & Anticorrosion
- Damp-proof & Sand-Proof

DM-400 Technical Specifications



DM-600 Technical Specifications



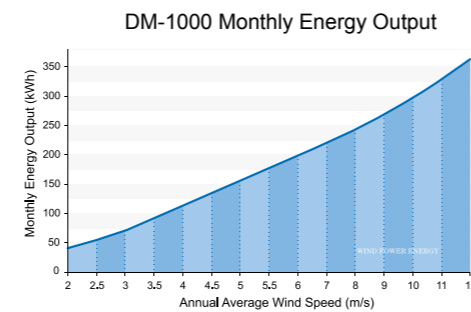
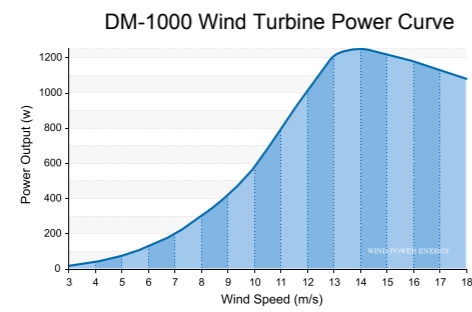
Technical Specifications:

Model	DM-400
Rated Output	400W
Peak Output	500W
Rated Voltage(V)	DC12/24
Start-up Speed	2m/s or 4.5mph
Cut-in Speed	2.5m/s or 5.6mph
Rated Rotor Speed (RPM)	750
Rated Wind speed(m/s)	12m/s or 26.8 mph
System average Cp.	≥0.36
Rated Charging Current (A)	33.3/16.7
Noise Level	<20dB (5m behind turbine @ 5m/s gusting)
KWH/month (monthly avg.V=5.5m/s)	82
Working Temp. range °C	from -40°C to 60°C
Survival Max. Wind	50m/s or 110mph
Over-speed Control	Electromagnetic & blade aerodynamic braking
Number of Blades	5
Rotor Diameter(m)	1.55
Swept Area (m ²)	1.89
Blade Material	Reinforced nylon glass-fiber
Generator Type	Brushless 3-phase with permanent Neodymium Magnet
Generator Material	Aluminum alloy body & precision stainless steel rotor
Net Weight	22KG
Tower Connection	flange connetion or bolt-on clamp
Controller Type	PWM or with low voltage charging function
Applications	Stand alone, solar & wind hybrid system etc.
Product Life (years)	15
Warranty (years)	1
Years on Market	7
Certificate	ISO9001:2008, CE, RoHS, ETL

Technical Specifications:

Model	DM-600
Rated Output	600W
Peak Output	750W
Rated Voltage(V)	DC24/48
Start-up Speed	2m/s or 4.5mph
Cut-in Speed	2.5m/s or 5.6mph
Rated Rotor Speed (RPM)	750
Rated Wind speed(m/s)	12m/s or 26.8 mph
System average Cp.	≥0.36
Rated Charging Current (A)	25/12.5
Noise Level	<20dB (5m behind turbine @ 5m/s gusting)
KWH/month (monthly avg.V=5.5m/s)	91
Working Temp. range °C	from -40°C to 60°C
Survival Max. Wind	50m/s or 110mph
Over-speed Control	Electromagnetic & blade aerodynamic braking
Number of Blades	5
Rotor Diameter(m)	1.75
Swept Area (m ²)	2.4
Blade Material	Reinforced nylon glass-fiber
Generator Type	Brushless 3-phase PMA with high performance Neodymium Magnet
Generator Material	Aluminum alloy body & precision stainless steel rotor
Net Weight	25KG
Tower Connection	flange connetion or bolt-on clamp
Controller Type	PWM or with low voltage charging function
Applications	Stand alone, solar & wind hybrid system etc.
Product Life (years)	15
Warranty (years)	1
Years on Market	6
Certificate	ISO9001:2008, CE, RoHS, ETL

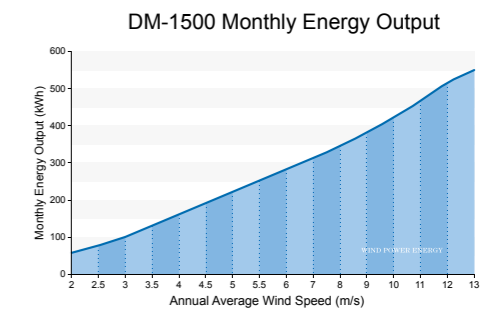
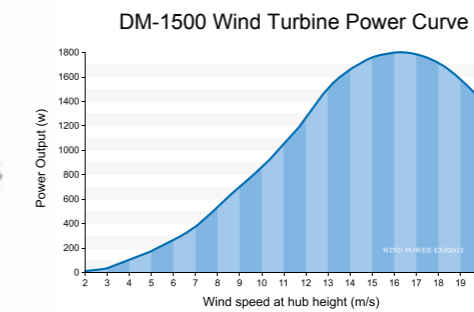
DM-1000 Technical Specifications



Technical Specifications:

Model	DM-1000
Rated Output	1000W
Peak Output	1200W
Rated Voltage(V)	DC24/48
Start-up Speed	2.5m/s or 5.6mph
Cut-in Speed	3m/s or 6.7mph
Rated Rotor Speed (RPM)	750
Rated Wind speed(m/s)	12m/s or 26.8 mph
System average Cp.	≥0.36
Rated Charging Current (A)	41.7/20.8
Noise Level	<20dB (5m behind turbine @ 5m/s gusting)
KWH/month (monthly avg.V=5.5m/s)	175
Working Temp. range °C	from -40°C to 60°C
Survival Max. Wind	50m/s or 110mph
Over-speed Control	Electromagnetic & blade aerodynamic braking
Number of Blades	5
Rotor Diameter(m)	1.96
Swept Area (m ²)	3
Blade Material	Reinforced nylon glass-fiber
Generator Type	Brushless 3-phase PMA with high performance Neodymium Magnet
Generator Material	Aluminum alloy body & precision stainless steel rotor
Net Weight	28KG
Tower Connection	flange connetion or bolt-on clamp
Controller Type	PWM or with low voltage charging function
Applications	Stand alone, solar & wind hybrid system etc.
Product Life (years)	15
Warranty (years)	1
Years on Market	4
Certificate	ISO9001:2008, CE, RoHS, ETL

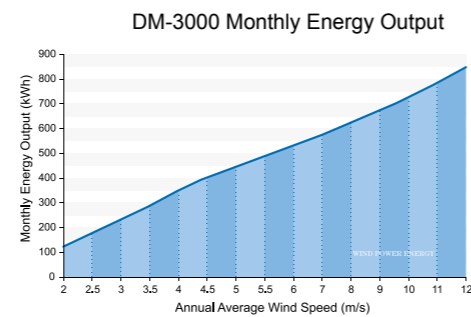
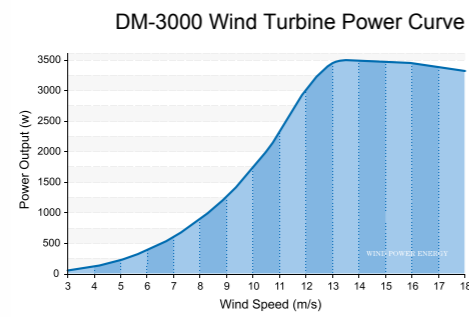
DM-1500



Technical Specifications:

Model	DM-1500
Rated Output	1500W
Peak Output	1800W
Rated Voltage(V)	Off-grid: DC48/110; On-grid: AC110/220
Start-up Speed	1.5m/s or 3.4mph
Cut-in Speed	2.5m/s or 5.6mph
Rated Rotor Speed (RPM)	700
Rated Wind speed(m/s)	13m/s or 29 mph
System average Cp.	≥0.38
Rated Charging Current (A)	DC 31.2/13.6 or AC 13.6A/6.8A
Noise Level	<20dB (5m behind turbine @ 5m/s gusting)
Working Temp. range °C	from -40°C to 60°C
Survival Max. Wind	60m/s or 133mph
Over-speed Control	Electromagnetic, magnetic damping & blade aerodynamic braking
Number of Blades	5
Rotor Diameter(m)	2.05
Swept Area (m ²)	3.3
Blade Material	reinforced nylon glass-fiber
Generator Type	Brushless 3-phase with permanent Neodymium Magnet
Generator Material	Aluminum alloy body & precision stainless steel rotor
Net Weight	35Kg
Tower Connection	flange connetion or bolt-on clamp
Controller Type	PWM or with low voltage charging function
Applications	stand alone, solar & wind hybrid system or grid-tie system etc.
Product Life (years)	20
Warranty (years)	1
Years on Market	4
Certificate	ISO9001:2008, CE, RoHS, ETL

DM-3000 Technical Specifications



Technical Specifications:

Model	DM-3000
Rated Output	3000W
Peak Output	3500W
Rated Voltage(V)	Grid-off DC48/110 or Grid-on AC110/220
Start-up Speed	2.5m/s or 5.6mph
Cut-in Speed	3m/s or 6.7mph
Rated Rotor Speed (RPM)	700
Rated Wind speed(m/s)	12m/s or 26.8 mph
System average Cp.	≥0.36
Rated Charging Current (A)	DC62.5/27.3 or AC27.2/13.6
Noise Level	<30dB (5m behind turbine @ 5m/s gusting)
KWH/month (monthly avg.V=5.5m/s)	495
Working Temp. range °C	from -40°C to 60°C
Survival Max. Wind	60m/s or 110mph
Over-speed Control	Electromagnetic & blade aerodynamic braking
Number of Blades	5
Rotor Diameter(m)	3.05
Swept Area (m ²)	7.3
Blade Material	Reinforced nylon glass-fiber
Generator Type	Brushless 3-phase PMA with high performance Neodymium Magnet
Generator Material	Aluminum alloy body & precision stainless steel rotor
Net Weight	70KG
Tower Connection	Flange connetion or reducing joint
Controller Type	PWM or with low voltage charging function
Applications	Stand alone, solar & wind hybrid system, grid-tie system etc.
Product Life (years)	15
Warranty (years)	1
Years on Market	4
Certificate	ISO9001:2008, CE, RoHS, ETL

DIMON ENERGY WIND TURBINE APPLICATION SYSTEM



Advantage of wind-solar hybrid street light

- Generating power day and night
- Balance seasonal power output difference of wind and solar
- Independent system, no city grid cable needed
- Easy installation, simple operation, applicable in majority of roads
- Intelligent lighting control system, maintenance free

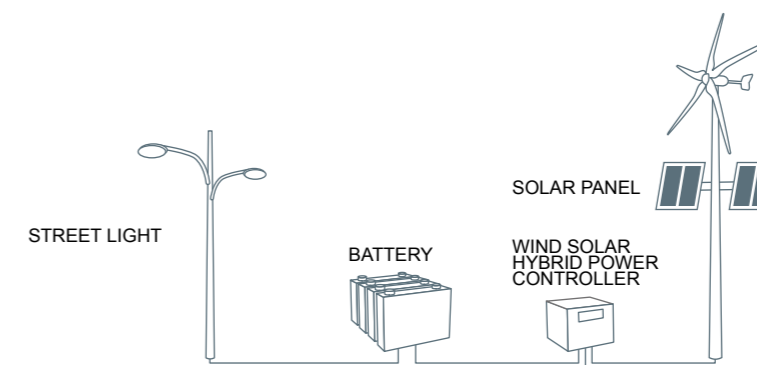


WIND-SOLAR HYBRID STREET LIGHT SYSTEM



DIMON Energy's advanced street light system is specifically designed base on project site wind and solar resource proportion and site terrain with precise calculation according to system load, lighting hours. The system guarantees power by continuously charging the superior quality batteries day and night, and utilizing the natural resources of sun and wind. Our hybrid street lamps guarantee a stable supply of electricity even in the consecutive cloudy or rainy days. The batteries reserve electricity so as to provide lighting when required. The lamp will automatically start lighting when it is getting dark with the use of an intelligent sensor system. The lamp is turned off by an automatic controller which can be set to a specific time as per your requirements with an average lighting time of 8-10 hours per day. Therefore, the whole system is virtually free maintenance and there is NO daily running cost, which is totally off-grid and free maintenance.

wind-solar hybrid street light circuit diagram



WIND SOLAR HYBRID POWER RESIDENTIAL SYSTEM

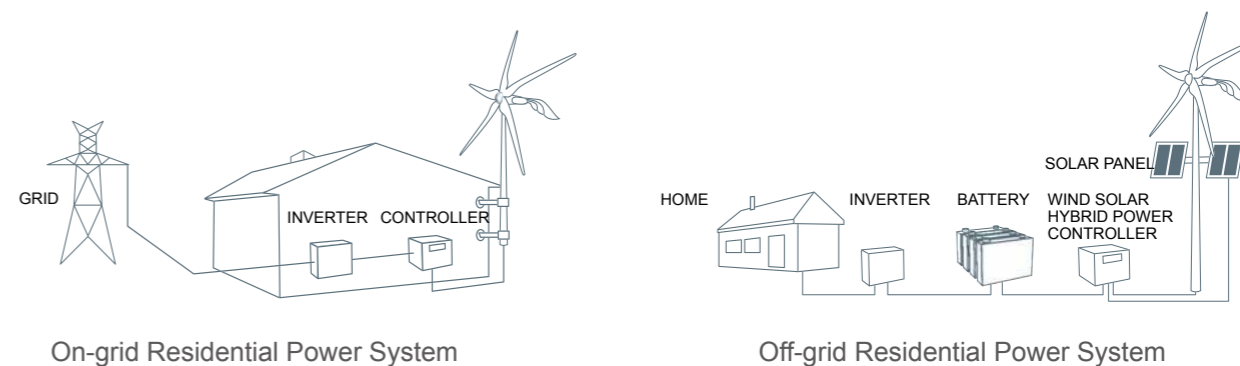


With the development of human society, people's demands for electricity become wider and wider, but for residents living in remote areas and in some certain industries, using grid for power is both difficult and expensive. Wind and solar hybrid power supply system utilizing wind resources and solar resources, two most widespread resources in nature, is the most applicable independent power supply; the overall cost of the system in remote area is much lower than connecting with utility grid with long distance, which not only save the conventional energy resources and maintenance cost, but also reduces pollution.

Wind and solar hybrid power supply system has extensive applied foreground in many fields; it can help residents in remote areas solve the problem of power supply and public lighting system.

Our Wind and solar hybrid power supply system is the most reliable independent power supply system, it utilizes wind and solar resource reasonably and effectively to provide a reliable and complete clean energy for residential. The hybrid system can either be on-grid or off-grid system according to specific need. HYE could provide complete solution package according to your local wind energy regulations and installation standards.

Wind-solar hybrid power residential solution circuit diagram

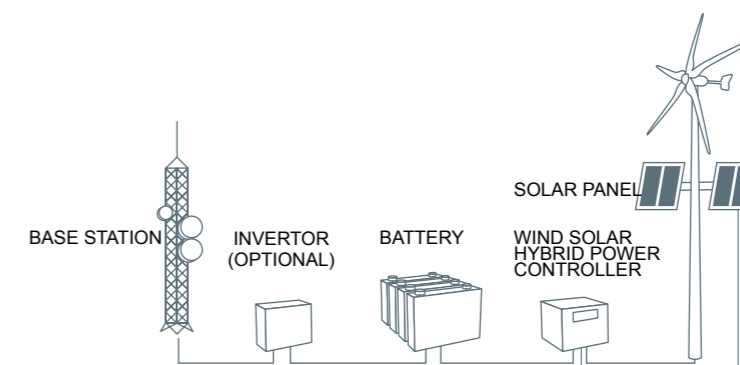


WIND-SOLAR HYBRID SYSTEM FOR TELECOM ANSE STATION



With mobile network is covering more rural area and underdeveloped areas in recent years, the economics has favored diesel generators due to their low capital cost, but with the rising fuel cost and the maintenance costs, more and more new installation of Basic Telecommunication Stations(BTS) start to take renewable energy system, such as solar or wind solar hybrid system. Fully independent wind-solar hybrid powered telecom tower system utilizing wind resources and solar resources to generate sustainable power for telecom tower, an intelligent power control system will manage to provide a sustaining power supply to telecom tower and storage the extra power into battery and use it when there is inadequate wind or solar. Each and every DIMON wind solar hybrid power BTS project is specifically designed according to BTS type, system load and reliability standard of project site, we could provide a complete system solution including power output calculation, reliability evaluation and installation manual.

Circuit diagram



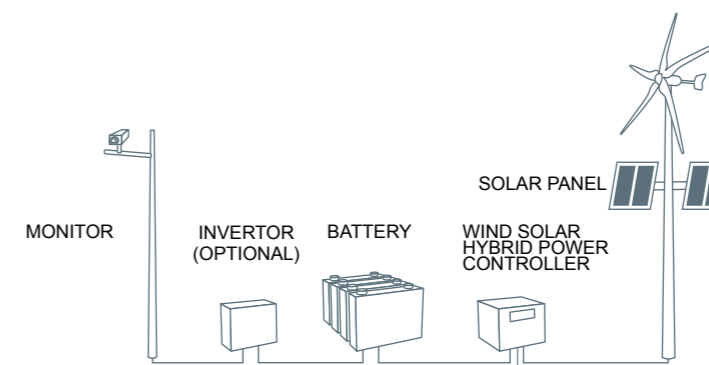
WIND SOLAR HYBRID SYSTEM FOR ROAD MONITORING



Installing road monitoring system can reduce vehicles peccancy, and reduce traffic accidents by detecting dangerous in time. It's difficult to install street monitoring system because of the high cost of constructing transmission cables and electricity access from grid. Wind solar hybrid power system could perfectly solve this problem since its complete off-grid independent power supply system, no construction site limited, which can be optimized configured according to detailed load requirement.

To sum up, wind solar hybrid power system can be the most ideal independent power system for road monitoring system.

Circuit diagram



DIMON Energy China & Abroad Project Show

DIMON Energy is not only a wind turbine manufacturer but also a pacemaker of application system of wind turbine and wind-solar hybrid power system in China. DIMON Energy is the first Chinese company who applied wind-solar hybrid street lamp abroad (Osaka Airport, Japan in 2004) and many first-one in application fields of wind-solar hybrid power system in China. For the last 11 years, HY Energy has designed and implemented over 300 projects (over 18,000 sets system) around China and worldwide, HY Energy has enjoyed a great reputation around world for its great system stability, high power output performance and after-sales service. Our engineering team could provide whole system design and full construction support base on your specific requirements. We believe soon you will benefit from our professionalism.



Nanjing Green EXPO Garden wind and solar power supply system in 2005

System: DM-600 wind turbine & PV array
Running conditions: running well, total running 6 years
Project significance: the first large-scale application of wind & solar hybrid residential power system in China



Osaka Airport, Japan wind & solar hybrid lighting system in 2004

System: DM-400W wind turbine & 180W PV
Running condition: running well, total running 7 years
Project significance: the first Chinese company who applied wind & solar hybrid system abroad



Shanghai Chongming island wind & solar hybrid lighting system in 2004

System: DM-400W wind turbine & 180W PV
Running conditions: running well, total running 7 years
Project significance: the first massive application of wind & solar hybrid lighting system in China



Nanpeng Island wind & solar powered seawater desalination system in 2010

System: DM-3000W wind turbine and 1500W PV
Running conditions: running well, total running 1 year
Project significance: the first large-scale application of wind and solar powered seawater desalination system in China



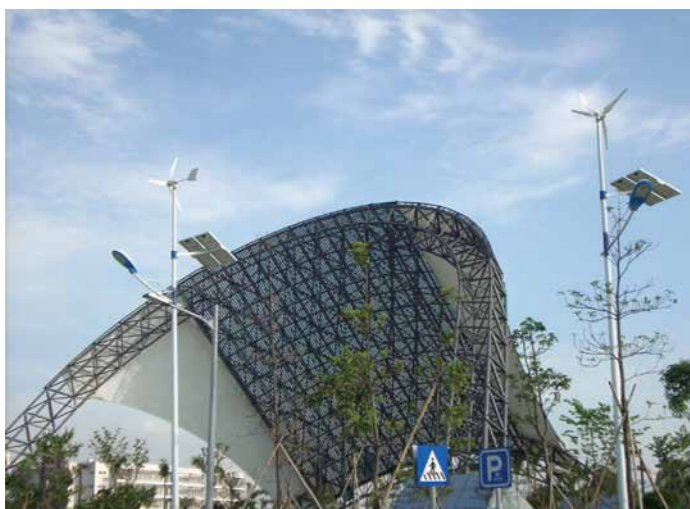
Qinhuangdao wind and solar hybrid lighting system in 2008

System: DM-400W wind turbine and 180W PV
Running conditions: running well, total running 3 years



Hainan Sanya wind and solar hybrid lighting system in 2009

System: DM-400W wind turbine and 180W PV
Running conditions: running well, total running 2 years



Guangzhou Science Plaza wind & solar hybrid lighting system in 2008

System: DM-400W wind turbine and 240W PV
Running conditions: running well, total running 3 years



Tianjin Eco-city wind and solar hybrid lighting system in 2010

System: DM-400W wind turbine and 180W PV
Running conditions: running well, total running 1 year



Guangzhou Huadu Government Square wind and solar hybrid landscape lighting system in 2010

System: DM-400W wind turbine and 240W PV
Running conditions: running well, total running 1 year



Nigeria wind and solar hybrid lighting system in 2010

System: DM-1000W wind turbine and 300W PV
Running conditions: running well, total running 1 year
Project significance: World Bank aid project for Nigeria rural area



Shanghai World Expo wind turbine powered landscape lighting system in 2010

System: DM-3000W wind turbine
Running conditions: running well, total running 1 year



Poland wind power residential system project in 2010

System: DM-2000W wind turbine
Running conditions: running well, total running 1 year



Zhongwei City, Ningxia wind & solar hybrid landscape lighting system 2011

System: DM-600W & DM-1000W wind turbine and 240W & 480W PV
Running conditions: running well