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888-329-2705 ph
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www.eco-smart.com

LED Solar & Wind Hybrid Street Lighting - Wholesale Pricing

Model	Picture	Wind Turbine/ Solar panel with brackets	Battery	Controller	Light Pole	Light Source	Wholesale Price
SD06-02		400W/2*65Wp	12V 80Ah*2 (not included)	included	without	**45W LED / 2800L**	**$4,036.67**
SD06-03		400W/2*65Wp	12V 100Ah*2 (not included)	included	without	**60W LED / 3400L**	**$4,368.33**
SD06-04		800W/2*85Wp	12V 150Ah*2 (not included)	included	without	**80W LED / 4800L**	**$5,900.00**

NOTE: 80W LED light requires steady high wind and/or sun for reliable operation

1. Customer OEM design is welcome - see specification document for details
2. Sample is available for quality test
3. Freight: quoted
4. Shipment: 30 days after receipt of confirmed order
5. Payment Term: T/T or LC

Solar-Wind
Hybrid LED Street light

Solar-Wind hybrid streetlight is an intelligent, small scale and off-grid LED street light system. Composed of solar modules and the LSFD400 wind turbine, PV deep cycle batteries, controller and a LED streetlight, this hybrid streetlight takes solar/wind as energy source and utilizes the energy for the lighting automatically during the night.

The whole system is virtually maintenance free and there are NO daily running costs totally off-grid, totally free.

Advantages and Benefits

- 24V charging/discharge system. Compared with the 12V, by adopting of 24V system, the charging/discharging current is small and less wire losses, improved the reliability of the system.
- MPPT(max power point tracking) technology. The charging efficiency increased 6%~30% more.
- Optimized PV gel battery. Our PV gel batteries are featured with low self-discharge, good consistence on deep discharge, long cyclic life and low floating charge voltage and current, free from erosion, pollution, gas escape and leakage. It is allowed to discharge deeply with wide temperature range from -40℃ to +60℃.
- Automatic light modulation by pre-setting function. Pre-setting function allows end user presets different light output at different period of time.
- Automatic Light modulation by monitoring capacity of battery. The controller can adjust output power to get longer operation time according to the actual capacity of battery.

Recommended Configuration of solar-wind hybrid system for 45W LED streetlight

Configuration	Description	Usage	Design life
LED Streetlight	45W LED streetlight, DC24V, 2800lm	1 pc	50,000hrs
Solar Module	65W mono-crystalline silicon solar modules	2 pcs	25 years
Wind turbine	400W 12V/24V	1 set	15 years
PV Battery	12V 80Ah deep cycle gel battery	2 pcs	12 years
Controller	Intelligent controller of solar-wind street light	1 pc	5 years
Lamp Pole	7m lamp pole	1 set	
Others	Bracket of solar modules as well as the battery cabinet	1 set	

Recommended Configuration of solar-wind hybrid system for 60W LED streetlight

Configuration	Description	Usage	Design life
LED Streetlight	60W LED streetlight, DC24V, 3400lm	1 pc	50,000hrs
Solar Module	65W mono-crystalline silicon solar modules	2 pcs	25 years
Wind turbine	400W 12V/24V	1 set	15 years
PV Battery	12V 100Ah deep cycle gel battery	2 pcs	12 years
Controller	Intelligent controller of solar-wind street light	1 pc	5 years
Lamp Pole	8m lamp pole	1 set	
Others	Bracket of solar modules as well as the battery cabinet	1 set	

Recommended Configuration of solar-wind hybrid system for 80W LED streetlight

Configuration	Description	Usage	Design life
LED Streetlight	80W LED streetlight, DC24V, 4800lm	1 pc	50,000hrs
Solar Module	85W mono-crystalline silicon solar modules	2 pcs	25 years
Wind turbine	800W 12V/24V	1 set	15 years
PV Battery	12V 150Ah deep cycle gel battery	2 pcs	12 years
Controller	Intelligent controller of solar-wind street light	1 pc	5 years
Lamp Pole	9m lamp pole	1 set	
Others	Bracket of solar modules as well as the battery cabinet	1 set	

*** Recommended configuration is for reference only.**
Customer will adjust it according to the local solar and wind resource or consult exports to get an exact solution.

LAUREL LED Street light

LAUREL LED street lights are combined with high power LEDs with high lumens, special quadric optical lens and stable constant current driver. Our patent structure for LEDs layout can make sure the uniformity of the lighting more than 0.45. The whole lamp is made of aluminum alloy ensure dust resistance, waterproof and self cleaning ability.

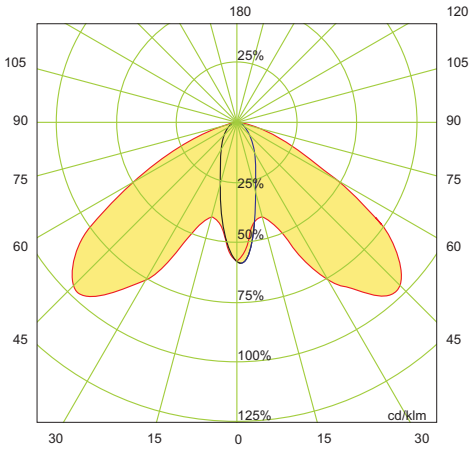
Features and Benefits

- Patent pending technology of corrugated matrix light can maximally improved the brightness and illumination uniformity.
- Our unique integrated aluminum fuselage structure with excellent heat dissipation coefficient, prolong the light source life.
- Maximal shining efficiency is up to 110lm/W by adoption advance LED chips.
- Power factor is over 0.98 without pollution to the grid.
- Saving installation cost by cutting down 70% diameter of cable and capacity of transformer.
- Containing no toxic mercury.
- Containing no UV and IR.

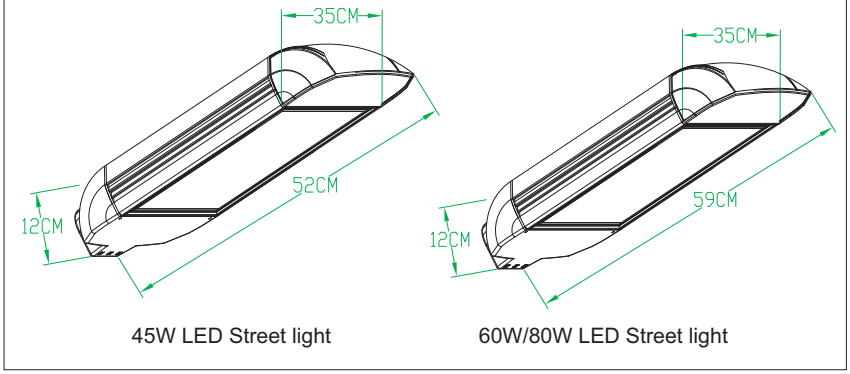
Main Technical Parameters

Input Voltage Range	Power consumption	Luminous flux	Average illuminance	Uniformity	Distance of Lamp poles	Lamp Height	Weight
24VDC	45W	2800lm	⩾12lux	⩾0.45	20m	6m	9.2kg
24VDC	60W	3400lm	⩾15lux	⩾0.45	25m	7m	10.9kg
24VDC	80W	4800lm	⩾15lux	⩾0.45	25~30m	8m	11kg

Lighting distribution curve



Physical Dimension



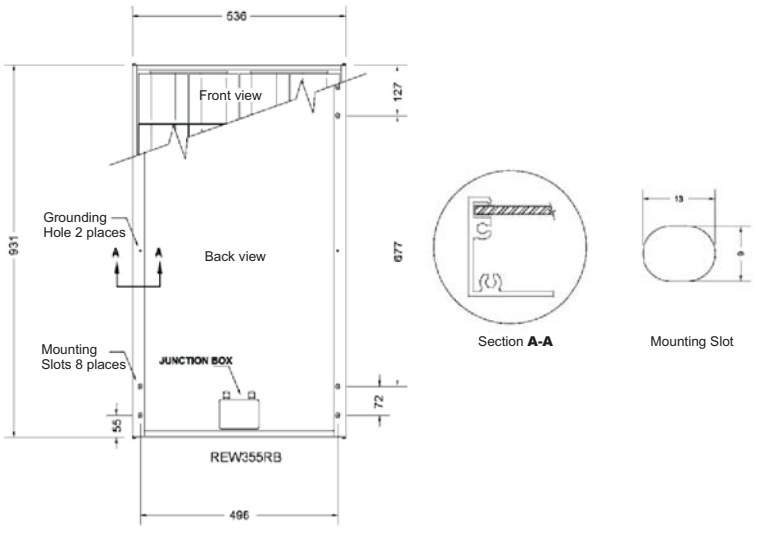
45W LED Street light

60W/80W LED Street light

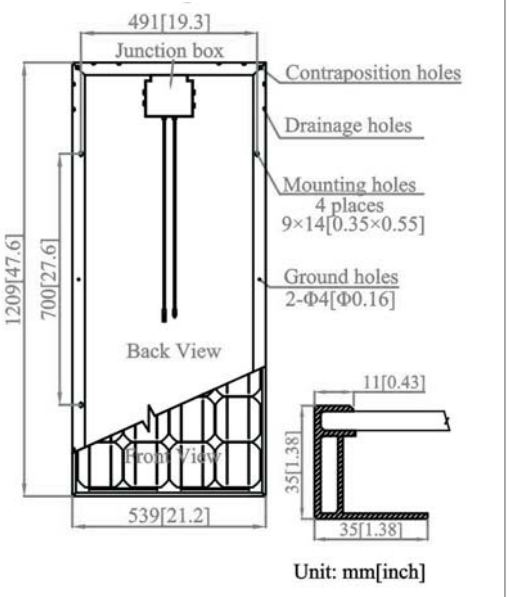
Solar panel 65W/85W
Monocrystalline

Maxmum Power (Pmax)	65W	85W
Open circuit voltage (Voc)	22.2V	22.2V
Optimum operating voltage (Vmp)	18V	17.7V
Short circuit current (Isc)	3.8A	5.05A
Optimum operation current (Imp)	3.6A	4.52A
Operating temperature	-40℃~ +80℃	-40℃~ +80℃
Maxmum system voltage	600V DC	600V DC
Series fuse rating	20A	20A
Dimension of cells	125 93.8mm	125 125mm
No. of cells and connection	36 pcs (4 9)	36 pcs (4 9)
Dimension of module	L931 W 536 H30mm	L1209 W539 H35mm
Weight	6.1KG	7.2KG

Module Diagrame



Solar panel 65W



Solar panel 85W

Wind Turbine Generator

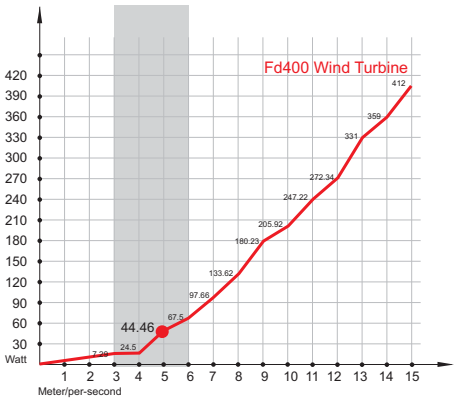
MODEL:SD400

Characteristics

- Low start-up wind speed. High system efficiency. Lower noise.
- New electrical output devise can prevent cable twist when in the windwill, this trouble often happen in traditional wind turbine.
- New connection devise that simplify the installation a nd maintenance.
- The blade use new material-fiberglass&nylon, and lower wastage of material per 100W electrical energy.
- The generator use magnetic circuit rotor with special stator. Which can reduce the torque and make a better match between the wind rotor and generator, enlarge the scope of effective wind speed,increase the output enery.
- The controller have the advantage of rectificate, stabilivolt. And the alarm function to indicate troubles as overcharge, lower voltage in the battery.
- Use damping device which not only can ensure the sensitivity for windward and direction, but also avoid the flatter.
- Intelligent sinusoid inverter covert the DC into AC of 220V/50Hz or 110V/60Hz, and have the function of automtic protection against short circuit, overloading, overdischarge and overcharge in the battery, which prolong the life of battery.

May Output 44.46W Power AT Wind Speed 5m/s

SD-400 Output power curve



Technical Parameter

Rate Power	400W	**Blade Material**	Fiber Glass&Nylon
Voltage	12/24V	**Roter Diameter**	1.7m
Starup Wind Speed	2.8m/s	**Storm Stand**	Up to 50m/s
Cut-in Wind Speed	3m/s	**Weight**	22kgs
Rate Wind Speed	15m/s	**Size(cm)**	110 60 20
Cut-out Wind Speed	20m/s	**Mast Height(m)**	10m
Survived Wind Speed	50m/s	**Battery**	100A.h/12V
Charge indicator	When on charging, bright light		
Controller Indication	Under voltage, Low voltage, Middle-high voltage, Over voltage		
Manostate function	14.5VDC (12V system) 29VDC (24V system)		
Over-vol Protection	14.5VDC (12V system) 29VDC (24V system)		
Under-vol Protection	10.5VDC (12V system) 21VDC (24V system)		
Overload Protection	100~120% Automatic lock in 25sec	120~200% Automatic lock in 1sec	>200% Automatic lock in 0.1sec
Output Waveform	Pure oscillation (distortion<3%)		
Charging Current	Maximum other charging current 18A, CPU controls charge		

Wind Turbine Generator

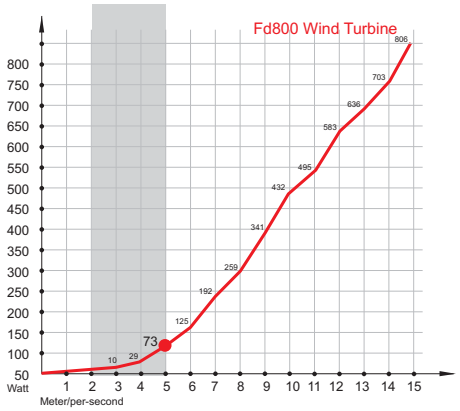
MODEL:SD800

Characteristics

- Low start-up wind speed. High system efficiency. Lower noise.
- New electrical output devise can prevent cable twist when in the windwill, this trouble often happen in traditional wind turbine.
- New connection devise that simplify the installation a nd maintenance.
- The blade use new material-fiberglass&nylon, and lower wastage of material per 100W electrical energy.
- The generator use magnetic circuit rotor with special stator. Which can reduce the torque and make a better match between the wind rotor and generator, enlarge the scope of effective wind speed,increase the output enery.
- The controller have the advantage of rectificate, stabilivolt. And the alarm function to indicate troubles as overcharge, lower voltage in the battery.
- Use damping device which not only can ensure the sensitivity for windward and direction, but also avoid the flatter.
- Intelligent sinusoid inverter covert the DC into AC of 220V/50Hz or 110V/60Hz, and have the function of automtic protection against short circuit, overloading, overdischarge and overcharge in the battery, which prolong the life of battery.

May Output 69.3W Power AT Wind Speed 5m/s

SD-800 Output power curve



Technical Parameter

Rate Power	800W	**Blade Material**	Fiber Glass&Nylon
Voltage	24/28V	**Roter Diameter**	1.7m
Starup Wind Speed	3.2m/s	**Storm Stand**	Up to 50m/s
Cut-in Wind Speed	3.8m/s	**Weight**	22kgs
Rate Wind Speed	15m/s	**Size(cm)**	130 60 20
Cut-out Wind Speed	20m/s	**Mast Height(m)**	10m
Survived Wind Speed	50m/s	**Battery**	120A.h/12V, 150A.h/12v
Charge indicator	When on charging, bright light		
Controller Indication	Under voltage, Low voltage, Middle-high voltage, Over voltage		
Manostate function	29VDC (24V system) 56VDC (48V system)		
Over-vol Protection	29VDC (24V system) 56VDC (48V system)		
Under-vol Protection	21VDC (24V system) 42VDC (48V system)		
Overload Protection	100~120% Automatic lock in 25sec	120~200% Automatic lock in 1sec	>200% Automatic lock in 0.1sec
Output Waveform	Pure oscillation (distortion<3%)		
Charging Current	Maximum other charging current 18A, CPU controls charge		

Controller of Solar Wind hybrid street light

The Intelligent Solar/Wind hybrid LED street light controller can converse AC generated by wind turbine and DC generated by solar panel and store in the battery. According to the advance micro control function, it makes the solar panel offers the MPPT charging, and increase charging efficiency up to 30%. It can be set with ON/OFF time and automatically adjust charging and discharging time and lighting power according to energy remain in the battery. The item owns many technical patents.

Features

- Specially designed for solar wind hybrid street light system
- Adopt MPPT technology, charging efficiency can be increased more than 10% compare with other controllers.
- For wind turbine charging, it adopts PWM charging mode, less wire losses compare with linear stable power supply. , and charging efficiency can be increase 6%-10% compare with other controllers.
- Wind turbine start-up control adopts wind turbine starts up first and charging follow so that to improve wind power utilization when wind speed is slow^ limited output power when wind speed is heavy so that to protect the battery.
- Multiple feedback operation
- LED display, helpfully for engineers to control the system status
- Wind power, solar power generate input separately, can be single input or hybrid input
- High precise of stable voltage & stable current, low wave, high efficiency, wide range of input voltage
- The controller system adopts multiple feedback close loop control according to features of wind power and solar power generating, for instance, constant power control, constant current and constant voltage control, etc., increase the generate efficiency maximally.
- Adopt limited current constant voltage mode charging, protect battery lifespan, and with temperature compensate function.

  fullfill temperature request of the battery running
- Automatically control lighting source ON/OFF.
- Automatically adjust lighting power according to energy remain in the battery.
- With improving protection function. For instance, solar panel and battery converse connect protection, battery voltage over-low cut off protection, input/output over-voltage protection, input/output over-current protection, wind turbine brake protection and so on.
- Perfect combination of wind power control and PV control.

Technical Parameter

Wind power generate input	Three level AC ≤60V，P≤400W
Wind power generate control mode	PWM
Over-voltage input protection	AC 60 5V
PV Battery input	DC35Vpm，P≤500W
PV charging control mode	(MPPT)
Over-current input protection	DC 20A 2A
Battery applied	24V，100～200Ah
Battery full charge voltage	DC 22 0.3V
Battery full recharge value	DC 24 0.3V
Battery average charge value	DC 28.8 0.3V
Battery float charge value	DC 27.5 0.3V
Battery full recharge value	DC 27.5 0.3V
Output branch	1
Dimension	234 149 75mm
Working environment	Working temperature – 10℃～+50℃, Humididty:0～90%

RA12-80DG (12V80Ah)

RA12-80DG is GEL Deep cycle battery, with 12 years floating design life, superiorly designed for frequent cyclic discharge applications under extreme temperature. By using strong grid to insure reliable performance under frequent cyclic discharge use. 400 cycles could be available at 100% DOD. Offering extra-durable cyclic performance, high efficiency of recovery ,that is more suitable for solar, mobility, E-toll, marine , deep discharge UPS etc..

Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	80Ah@20hr-rate to 1.75V per cell @25°C
Weight	Approx. 24.0 Kg
Max. Discharge Current	800 A (5 sec)
Internal Resistance	Approx. 7.0 mΩ
Operating Temperature Range	Discharge: -40°C~60°C Charge:-20°C~50°C Storage: -40°C~60°C
Normal Operating Temperature Range	25°C±5°C
Float charging Voltage	13.6to 13.8 VDC/unit Average at 25°C
Recommended Maximum Charging Current Limit	16A
Equalization and Cycle Service	14.2 to 14.4VDC/unit Average at 25°C
Self Discharge	RITAR batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using.
Terminal	Terminal F5/F11
Container Material	A.B.S. (UL94-HB), Flammability resistance of UL94-V1 can be available upon request.

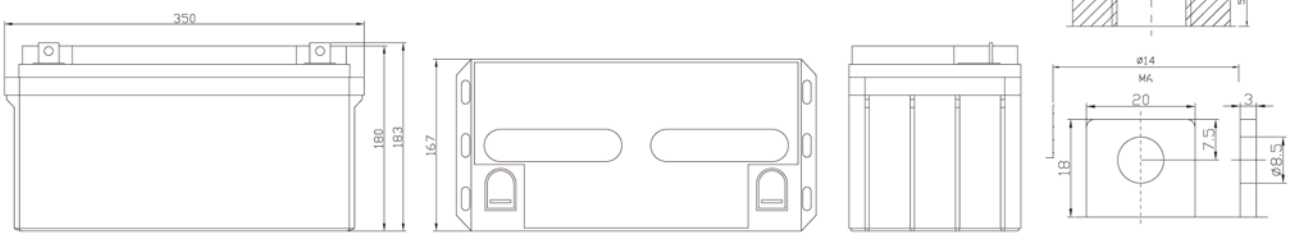
MH28539

G4M20206-0910-E-16

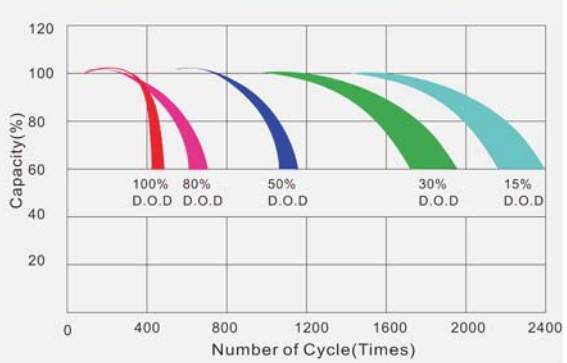
ISO9001:2000 Certificate

Dimensions

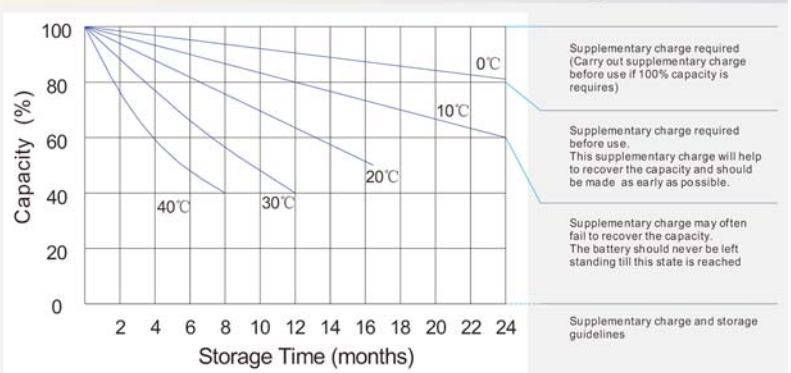
Unit: mm Dimension: 350(L)×167(W)×183(H)



Life characteristics of cyclic use



Storage characteristic



RA12-100DG (12V100Ah)

RA12-100DG is GEL Deep cycle battery, with 12 years floating design life, superiorly designed for frequent cyclic discharge applications under extreme temperature. By using strong grid to insure reliable performance under frequent cyclic discharge use. 400 cycles could be available at 100% DOD. Offering extra-durable cyclic performance, high efficiency of recovery ,that is more suitable for solar, mobility, E-toll, marine , deep discharge UPS etc..

Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	100Ah@20hr-rate to 1.75V per cell @25℃
Weight	Approx. 30.0 Kg
Max. Discharge Current	1000 A (5 sec)
Internal Resistance	Approx. 7.5 mΩ
Operating Temperature Range	Discharge: -40℃~60℃ Charge:-20℃~50℃ Storage: -40℃~60℃
Normal Operating Temperature Range	25℃ 5℃
Float charging Voltage	13.6to 13.8 VDC/unit Average at 25℃
Recommended Maximum Charging Current Limit	20A
Equalization and Cycle Service	14.2 to 14.4VDC/unit Average at 25℃
Self Discharge	RITAR batteries can be stored for more than 6 months at 25℃. Self-discharge ratio less than 3% per month at 25℃. Please charge batteries before using.
Terminal	Terminal F5/F12
Container Material	A.B.S. (UL94-HB), Flammability resistance of UL94-V1 can be available upon request.

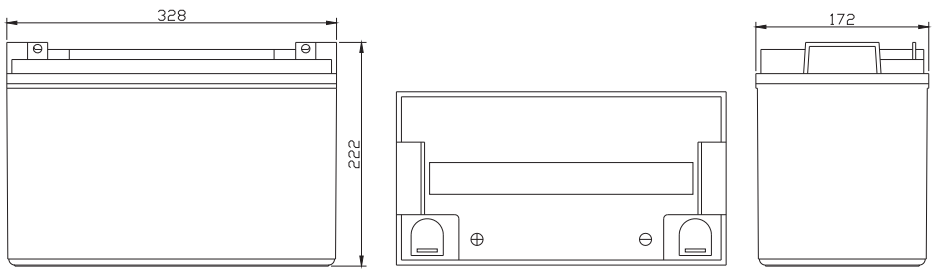
MH28539

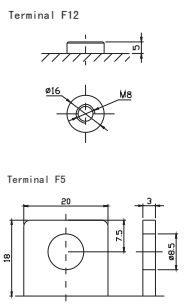
G4M20206-0910-E-16

ISO9001:2000 Certificate

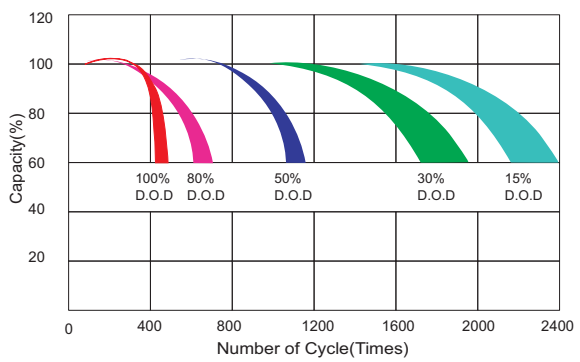
Dimensions

Unit: mm Dimension: 328(L) 172(W) 222(H)

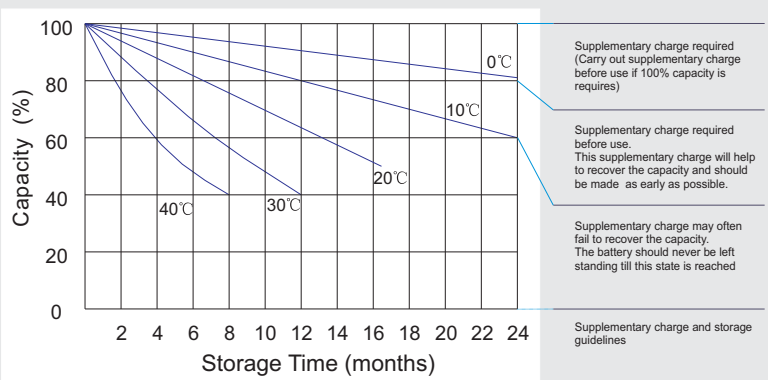




Life characteristics of cyclic use



Storage characteristic



RA12-150DG (12V150Ah)

RA12-150DG is GEL deep cycle battery, with 12 years floating design life, superiorly designed for frequent cyclic discharge applications under extreme temperature. By using strong grid to insure reliable performance under frequent cyclic discharge use. 400 cycles could be available at 100% DOD. Offering extra-durable cyclic performance, high efficiency of recovery ,that is more suitable for solar, mobility, E-toll, marine , deep discharge UPS etc..

Cells Per Unit	6
Voltage Per Unit	12
Capacity	150Ah@20hr-rate to 1.75V per cell @25°C
Weight	Approx. 44.5 Kg
Max. Discharge Current	1500 A (5 sec)
Internal Resistance	Approx. 6 mΩ
Operating Temperature Range	Discharge: -40°C~60°C Charge:-20°C~50°C Storage: -40°C~60°C
Normal Operating Temperature Range	25°C±5°C
Float charging Voltage	13.6 to 13.8 VDC/unit Average at 25°C
Recommended Maximum Charging Current Limit	30A
Equalization and Cycle Service	14.2 to 14.4VDC/unit Average at 25°C
Self Discharge	RITAR batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using.
Terminal	Terminal F5/F12
Container Material	A.B.S. (UL94-HB), Flammability resistance of UL94-V1 can be available upon request.

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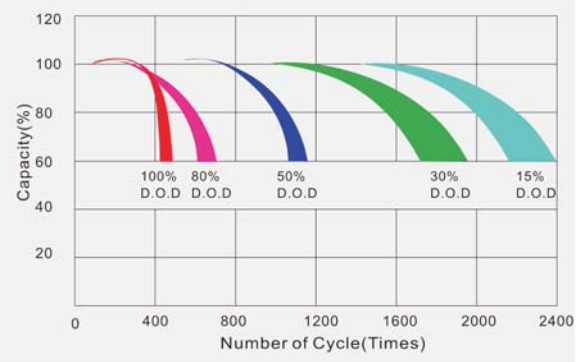
G4M20206-0910-E-16

ISO9001:2000 Certificate

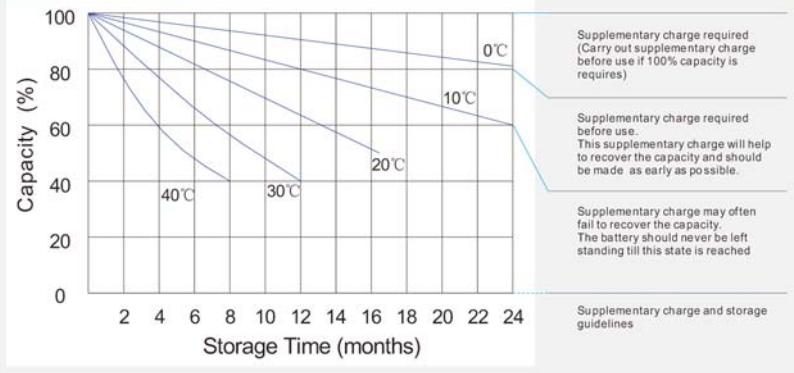
Dimensions

Unit: mm Dimension: 483(L)×170(W)×240(H)

Life characteristics of cyclic use



Storage characteristic



Applications

Solar & Wind Combine Street Lighting 24V SOX 55Watt

Manual Instruction

Solar & Wind Combine Street Lighting 24V SOX 55Watt :

1) Wind turbine 24V 400W
2) Wind Turbine Controller 24V DC
3) Solar Panels, 50Watt x 2pcs with 12V for each panel, in series two pieces of 12V panel into 24V
4) Solar Panel brackets;
5) Solar Controller;
6) Battery: 2x100Ah 12V in series into 24V DC output;
7) Battery Casing
8) Lighting Pole: 9 meters height
9) Solar Street Lighting Fixture
10) Lighting Source: 24V 55Watt low pressure sodium lamp (SOX 55watt);
11) Inter-connection wires.

Remark for above installation

The person should be qualified and professional to install the solar & Wind Combine Street Lighting system. The reference installation procedures should be as follows:

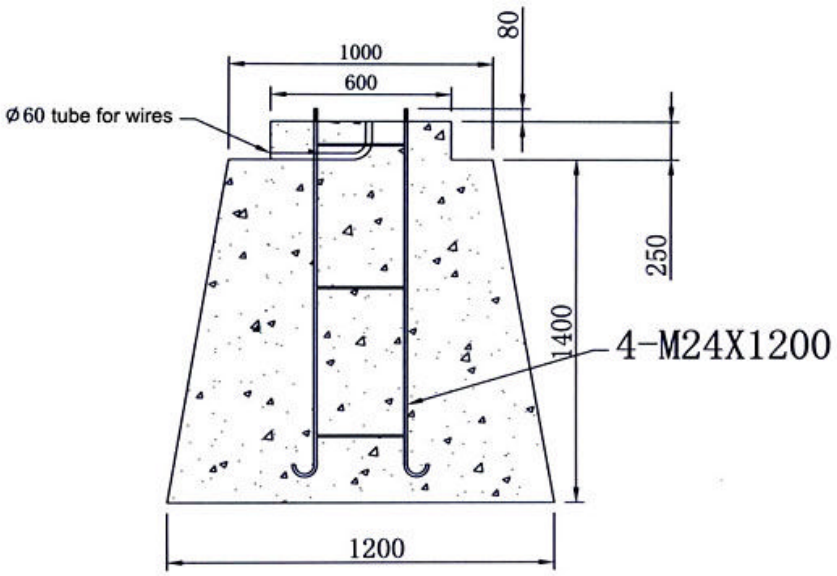
1. Please install the 24V 400Watt wind turbine in advanced. (Please manual instruction of Wind turbine) And please connect the wind turbine wires to the wind turbine controller.
2. Please build the concrete base foundation of the pole and battery casing;
3. Please check power cable inside of the lamp post to distinguish the polarity of which end is positive and which end is negative. Then connect the cable wires to correct polarity of the solar panel first.
4. Install the solar panel with brackets on relative position of the pole;
5. Install the battery casing on the foundation
6. Install 24V Central controller inside of the battery casing, connect the relative connection end with wind turbine controller, solar panel, battery, lamp and sensor;
7. Install the 24V 55W Low Pressure Sodium Lamp fixture (SOX 55Watt) on the arm of the lighting pole and connect the relative wires.
8. Please connect the wires to the battery from the controller, also connect the wires to the (SOX 24V 55Watt) lighting fixture from the controller; please note the polarity of “+” and “-“ ; Please lead out the sensor from the controller to attach near the ventilation hole of the battery casing.

Warning:

1) When the wind turbine and solar panel is working, do not do the installation job. If you want to do this, we suggest you use some black color cloth to cover the panel to do the installation job.
2) If for wrong connection diagram will cause the central controller fail, so please note the polarity.

Installation Procedures with photos description:

1. Concrete Base



Remark

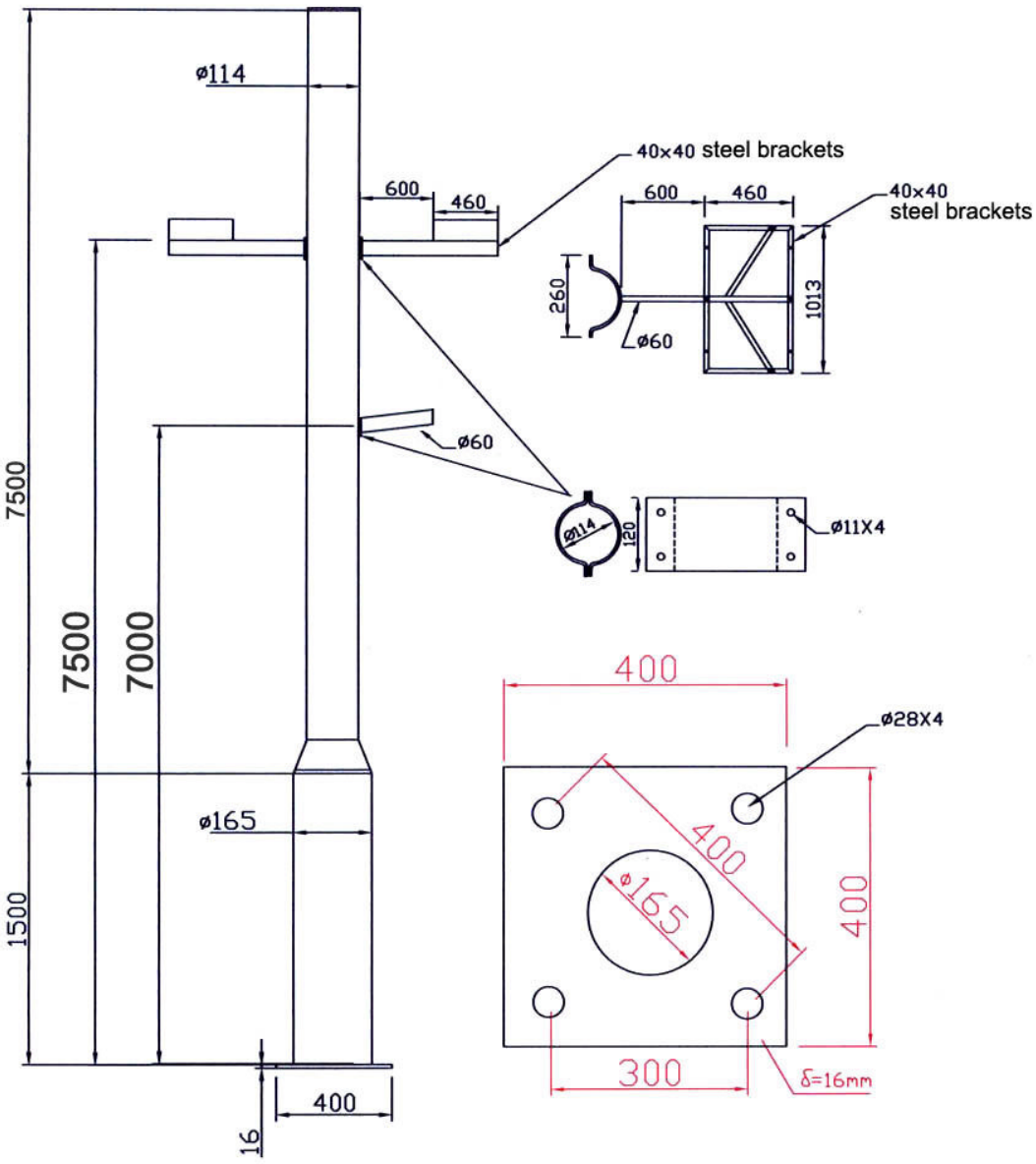
1. The concret base use 250# concret to built, must protect the concret base at least 7 days before installing the lighting pole and foundation on it.

2. The diameter of steel threaded rod is 24mm, its length is 1200mm, will need to use the butter and adhesive tape to pack the threaded rod, in order to protect the teeth of screws from being eroded by rust. The nuts will be 50mm higher above foundation.

3. The surface of the (1400X1200mm) hole must be flat and firm before moulding the concret base into it.

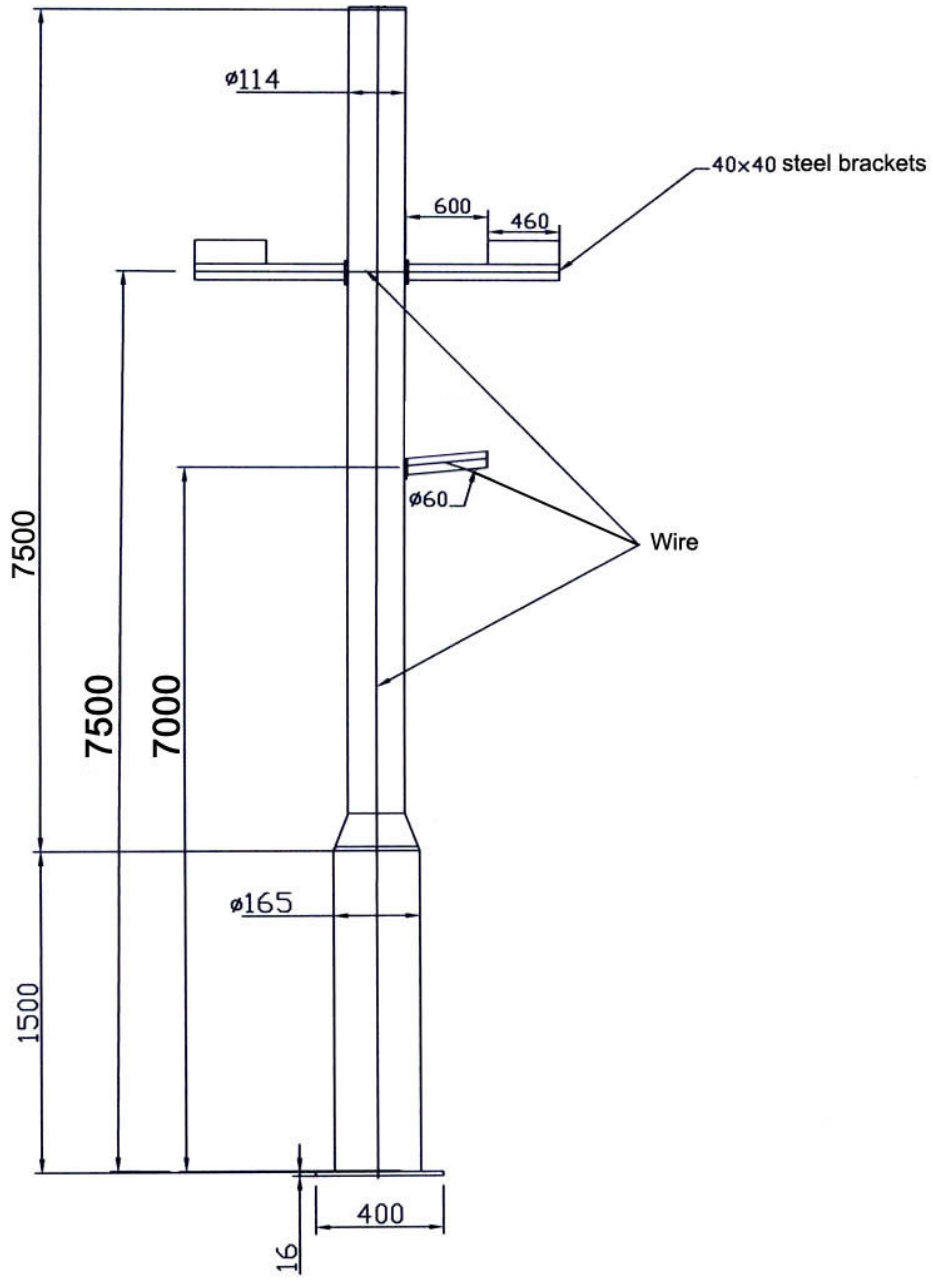
4. When moulding the concret base, should use a shaking pump to shake, in order to mix the cement, small rock and sand etc. Evenly, the surface of connect base must be flat.

2. Drawing of Wind & Solar Street Lighting.

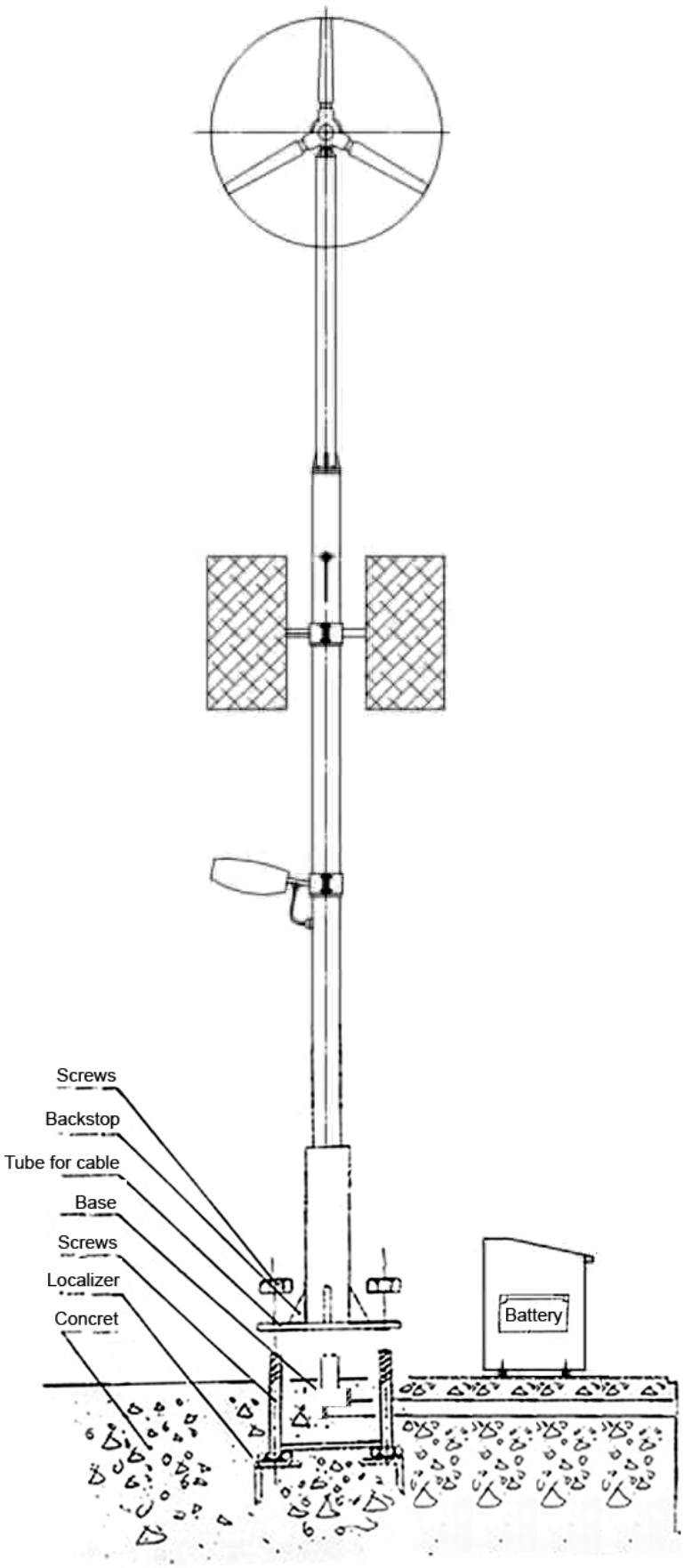


Drawing of Solar/Wind Street Lighting

3. Drawing of Wire Connection.



Drawing of Wire Connection


Screws
Backstop
Tube for cable
Base
Screws
Localizer
Concret
Battery

Power Connection Diagram For Solar/Wind Street Lighting