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concept[®]

HYBRID STREET LIGHT



CONCEPT[®]

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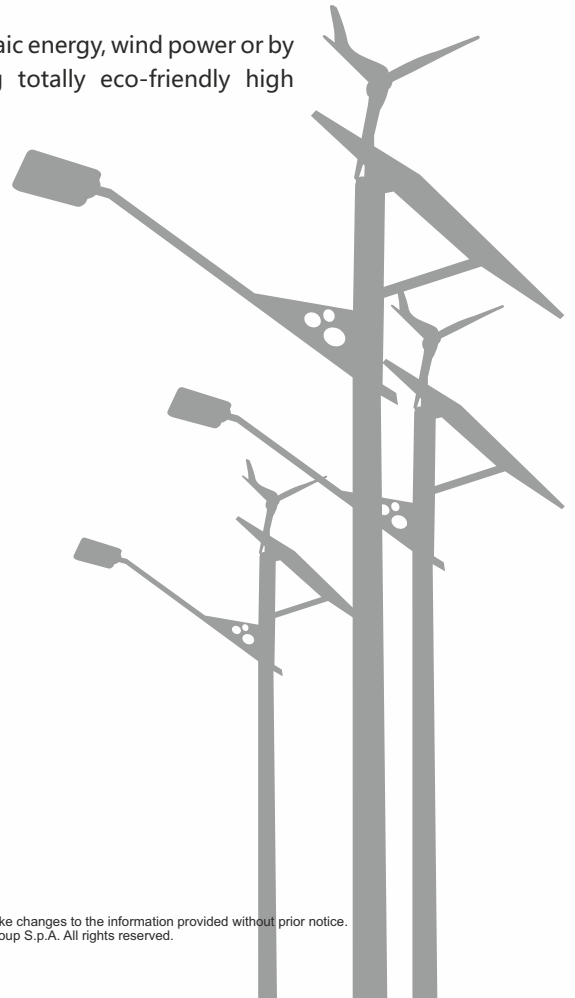
Ubilux presents Concept street light.

A line of street lamps powered by solar energy and wind power. Ideal for illuminating areas that are not electrified, the Concept street light self-fueling system finds its ideal use in street lighting and in rural areas.

Why choosing it

A product designed to ensure 72 hours autonomy in total absence of recharging sources, with programmed ignitions up to twelve hours per night. Easy to install, it ensures instant accessibility to components for maintenance and repair operations. Its modular design also makes it possible to operate easily, reducing response times and maintenance costs. A special LED lamp ensures excellent visibility to drivers and pedestrians, concentrating the luminous flux where necessary.

Concept street light can be powered either by photovoltaic energy, wind power or by a combination of the two sources, always ensuring totally eco-friendly high performances.



UBILUX[™]
AROUND LIGHT

CONCEPT HYBRID

Street Light System Solar-Wind LED



Total height outside ground mm 9800
(excluding wind turbine)



Plate burying mm 110



Thickness mm 4



Pole diameter mm 193,7



Wind turbine pole diameter mm 54



Total weight kg 265



Plinth dimensions mm 1200x1200x1000h



Lamp distance from ground mm 8000



Batteries distance from ground mm 4100



PV module inclination 45°



Controller distance from ground mm 4150



PV module power 250W



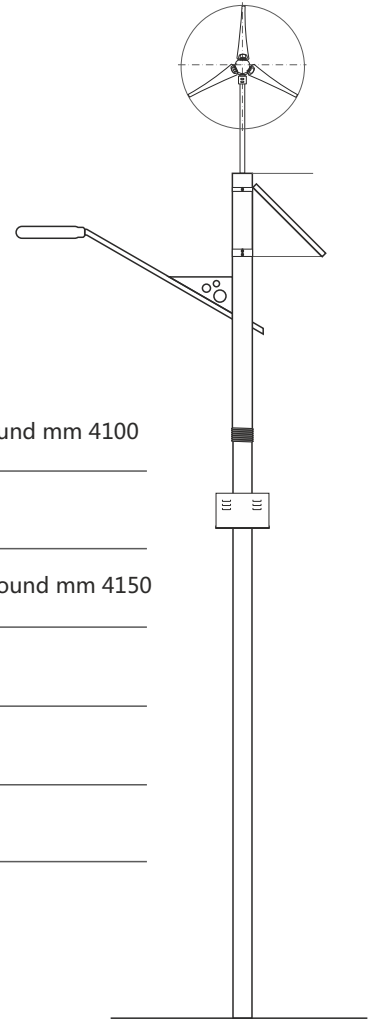
LED lamp power 70W



Wind turbine power 400W



Battery 2x12V/150Ah



Solar & Wind Controllers with protection functions

Applications

- ◆ Street Lighting
- ◆ Roadway Lighting
- ◆ Pathway Lighting
- ◆ Ramp Lighting
- ◆ Sidewalk Lighting
- ◆ Private Road Lighting
- ◆ Farm Lighting
- ◆ Wildlife Area Lighting
- ◆ Perimeter Security Lighting
- ◆ Park Lighting
- ◆ Gate Lighting
- ◆ Railway Yard Lighting
- ◆ Fence Lighting
- ◆ Campus Lighting
- ◆ Ship Dock Lighting
- ◆ Remote Area/Villages Lighting
- ◆ Military Base Lighting

Benefits

- ◆ No line voltage, trenching, or metering
- ◆ No power outages
- ◆ Battery backup for cloudy or rainy days
- ◆ Easy to install
- ◆ Low maintenance
- ◆ No cost of transformers or meters to be added for electric service
- ◆ Qualify for savings from various state taxes and incentives
- ◆ No monthly electric bills
- ◆ Controlled charging to prolong battery service life
- ◆ Long-life PV modules with more than 25 years of power generation capacity
- ◆ Environment friendly -100% powered by the sun and by the wind, solar panels reduce fossil fuel consumption, eliminating pollution
- ◆ IP 66 Luminaire ensures long lasting and consistent high performance
- ◆ Self-contained solution -Light on/off controlled by automatic daylight sensing
- ◆ No running cost
- ◆ Better and long life light source -LED lights feature white light without flickering and instant on
- ◆ Safe 12/24 volt circuit, no risk of electric shock.

WITHOUT THE NEED OF GRID CONNECTION

High efficiency, low cost and long service time all in one system .

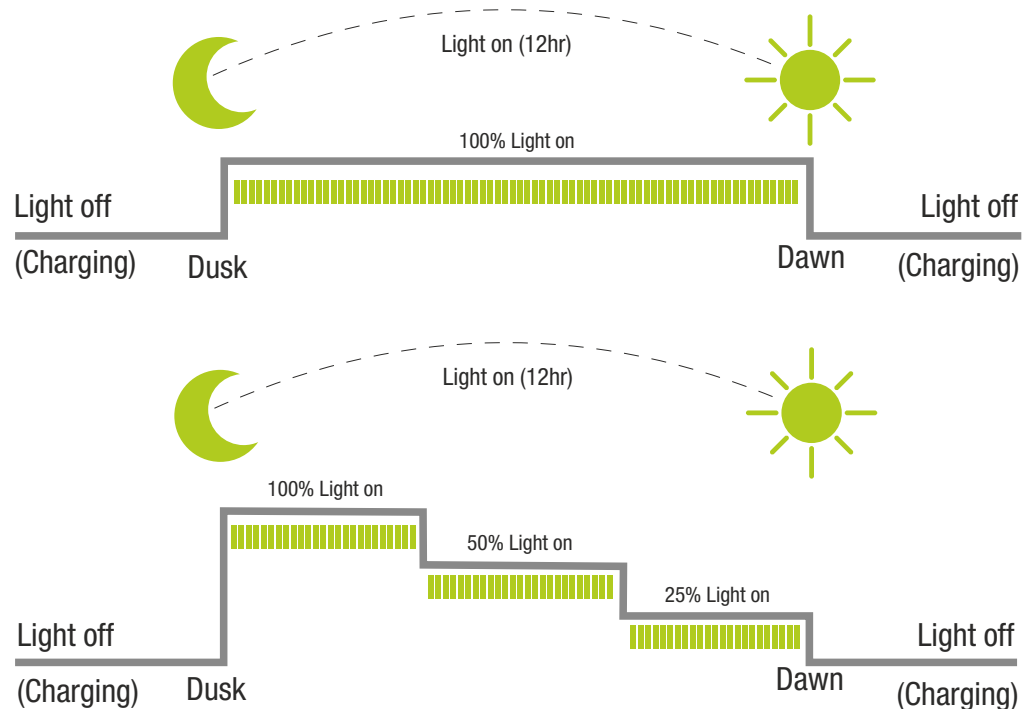
The photovoltaic solar cells in the solar panel convert the solar radiation during the day into electrical energy, during the night or if it is cloudy, the wind turbine convert the wind into electrical energy. The electrical energy is stored in batteries through the monitoring and manipulation if the controllers. At the night when the ambient light decreases below a set level sensed by the photo sensor linked to the controller, the battery will discharge to light up the street light. The system has the ability to detect external anomaly and protect all components.

The following diagrams provide an overview of the connections.



System Work Mode

Turn-on/off voltage range setting & dimming profile can be fine tuned based on installation site environment & customer request. The following diagram show two typical working modes.



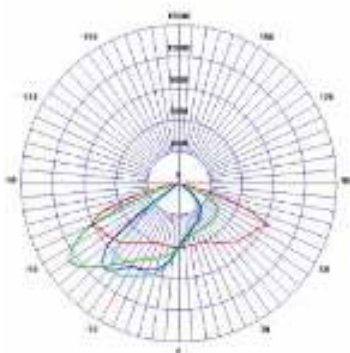
CONCEPT LED LAMP

70W Street/Parking Lot Light

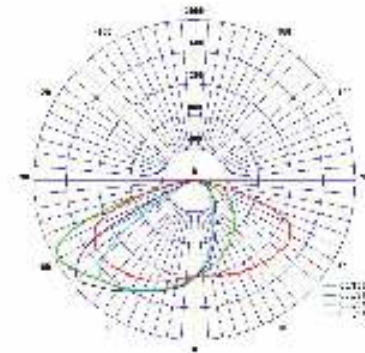


Model	Concept lamp LED
LED	24
Power (programmable max)	70W
Initial lm	6400
Weight (kg)	7.5
Shipping weight (kg)	8
Dimensions (mm)	445x370x81
Packaging dimensions (mm)	545x500x185
Rated voltage	39VDC
Power supply efficiency	LED modules only, no power supply
Power factor	Not Applicable
lm/W	> 90 lm/W, up to 120 lm/W with limitations upon request
CRI	>70
Color temperature	3000k, 3500k, 4000k, 6000k, more options upon request
Operation temperature	-40 ~ 50°C
IP rating	IP67
Lifespan	>50,000 hours
Mounting bracket diameter	60 mm
LED chip	CREE, Samsung
Certifications	CCC, CE
Material	Aluminum alloy body with stainless steel screws

Photometric Distributions:



For Street 3 to 9 meters wide



For Street 10 to 18 meters wide

CONCEPT TURBINE WIN-CP400T

WIN-CP400T Turbine Parameter



The Parameters

Parameter Name	Parameter Value WIN-CP400T Turbine parameter
Rated power	400W
Maximum power	430W
Rated voltage	12/24V
Start-up wind turbine	2.5 m/s
Rated wind speed	11.5 m/s
Survival wind turbine	45 m/s
Top net weight	10kg
Wheel diameter	1.35m
Number of blades	3/5
Blades material	Nylon fiber
Generator	Three phase permanent magnet ac synchronous generator
Magnet	NdFeB
Generator case	Casting aluminum alloy
Speed regulation	Automatically adjust windward direction
Working temperature	-40°C - 80°C
Design life	20 years

PHOTOVOLTAIC MODULE

MICRON 60P ADVANCE

Characteristics of the module Micron 60P Advance

Dimensions (±3 mm)	1658x994x32,80 mm
Weight	60P module with frame mm 32,80, glass mm 3,2, 20,6 kg.
Junction Box	Tyco Electronics, protection level IP 65. Contains 3 Schottky-type bypass diodes to minimize any losses due to the shadowing of the module.
Connector	MC4, protection level IP 67, quick connect.
Cable	Tyco Electronics, 4 mm ² , section lenght 90/100 cm, maximum sustainable voltage 1000V.
Smooth Glass	Tempered, prismatic, antireflection, low iron content, thickness 3.2mm.
Cells	60 photovoltaic polycrystalline silicon cells with 3 busbars. Cell dimensions 15,6 cm x 15,6 cm - Cell area 243,36 cm ² . The cells are encapsulated in layers of EVA (ethylene vinyl acetate).
Ribbon	Copper coated with Sn 68%, Pb 30%, Ag 2%.
Back layer	Double layer of high-performance polyester with guaranteed resistance against atmospheric agents. Colour: white (other colours on demand).
Frame	32,80 mm thick aluminium frame, anodized or silver painted coating (matt RAL 9006). Other colours available on demand. Resistance of the module to heavy snow and/or wind loads (maximum pressure 5400 Pa - about 550 Kg/m ²)



ANTI PID TECHNOLOGY HOT SPOT PROTECT

- 10 years** 10 years of guaranteed performance at an output power of 90%
- 25 years** 25 years of guaranteed performance at an output power of 80%
- 12 years** 12 year product guarantee against manufacturing defects.

Top performances

The use of polycrystalline solar cells with 3 bus bar, that reduces the series resistance of the module and limits the operating temperature of the cells, combined with the high and certified quality of all components results in the maximized performance of the Micron 60P Advance module.

Lighter, easier to handle

The new slim frame guarantees a lighter and less bulky module compared to standard modules. A key factor that allows to store and carry a greater number of modules more easily, in the same area. Space saving, lower costs in storage and logistics.

Maximum solar radiation absorption with the new anti-reflective glass

The glass of the Micron 60P Advance module ensures high values of resistance and mechanical strength, due to its thickness of 3,2 or 4 mm, and minimize the amount of reflected solar radiation. The anti-reflection coating is deposited only on the outer side of the glass minimizing the reflection at the air-glass interface, moreover, since the deposition occurs on one side only, the adhesion between the glass and the other components of the module, that occurs during the lamination process, it is not affected. The treatment is performed during the quenching of the glass allowing an excellent aesthetic result and optimal durability over time.

PID free technology

The modules of a photovoltaic system may be subject to differences in voltage due to the system between the frame and the cells. Such voltage differences can cause undesired leakage currents that negatively affect the performance of the cell.

PID Free Technology (potential induced degradation), integrated in the Micron modules, optimizes the production process in such a way that the negative effects of leakage currents are eliminated already at the level of the cells, guaranteeing the highest possible performance.

Protection from Hot Spot

When a cell is shaded stops to generate current unlike the other cells of the module. Reverse currents pass through any small defects in the material that are present in the cells, if cells have low electrical resistance. Because of this strong overload, Hot Spot areas are generated and can overheat and reach temperatures above 250 ° C. This can also lead to the fusion of the cell or to its combustion. The cells of the Micron Advance module are individually tested by applying a reverse current, and a thermal imaging camera is then used to identify each hot spot. Every cell with Hot Spot is discarded and removed, so Micron modules are full Hot Spot free.

Only positive tolerance

Tolerance of the output power is a percentage figure that identifies the quality standards of the production of the modules. The Micron modules feature only positive tolerance of the output power, guaranteeing higher performance than those estimated in the design phase. The only positive tolerance of the output power of the module Micron Advance means higher energy efficiency and economic return.

Environment friendly

Cappello Alluminio S.r.l. adheres to the mandatory consortium COBAT for the disposal of photovoltaic modules at the end of their life, in the territory of the Italian state. For other States it relies on other authorized consortia.

PHOTOVOLTAIC MODULE

MICRON 60P ADVANCE

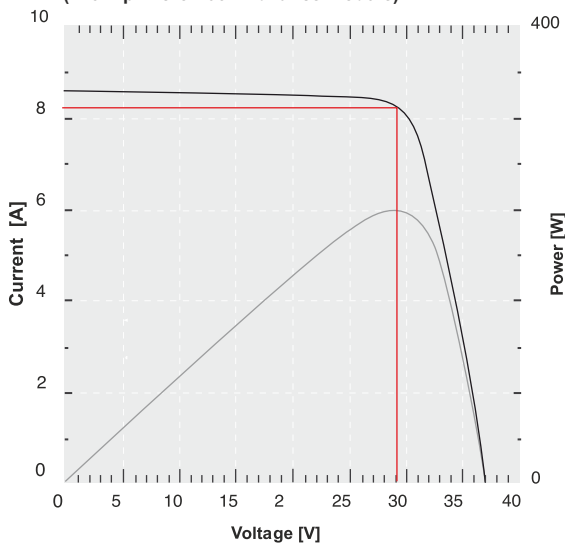
Electrical characteristic of the pv module Micron 60P Advance

PERFORMANCE AT STANDARD TEST CONDITIONS (STC: 1000 W/m², 25 °C, AM 1.5 G SPECTRUM)¹

ARTICLE CODE	CODICE ARTICOLO	A60PAK06BC250
MODULE CATEGORY		CA250P60
Maximum power	P _{max} [Wp]	250
Open circuit voltage	V _{oc} [V]	37,28
Voltage at maximum power	V _{mp} [V]	30,38
Short-circuiting current	I _{sc} [A]	8,43
Current at maximum power	I _{mp} [A]	8,23
Maximum system voltage	V _{max} [V]	1000
Module dimensions (long side)	LL [mm]	1658
Module dimensions (short side)	LC [mm]	994
Module surface area	A _m [mq]	1,65
Module efficiency	%	15,15

TEMPERATURE COEFFICIENT ²		NOCT
POWER	-0,41 %/K	44,7°
CURRENT	+0,04 %/K	
VOLTAGE	-0,30 %/K	

Current/voltage and Power/voltage curves
(240 Wp Micron 60P Advance module)



(1) Measurement tolerances STC: ± 3 % (PMPP); ± 10 % (I_{sc}, V_{oc}, I_{mp}, V_{mp}).
 (2) Measurement tolerances NOCT: ± 5 % (PMPP); ± 10 % (I_{sc}, V_{oc}, I_{mp}, V_{mp})
 The Micron module complies with CEI EN Standard 61215, CEI EN Standard 61730-2
 Il modulo Micron è conforme alle norme CEI EN 61215, CEI EN 61730-2

NOTE: Instructions contained in the installation, use and maintenance manual must be followed or contact the technical service for further information on proper installation and use of this product.

CONCEPT GEL BATTERY

DEEP CYCLE GEL BATTERY CP150B 12V150AH



Applications

- ◆ Renewable energies
- ◆ Electric tools
- ◆ Vehicle in place of walking
- ◆ Lawn mowers
- ◆ Golf trolleys and golf cart
- ◆ Portable apparatus, lights and instruments;
- ◆ Electric toys
- ◆ Illumination light
- ◆ Fire alarms
- ◆ Portable power
- ◆ Wheelchairs
- ◆ Medical equipments.

CE RoHS

ISO 9001	ISO 14001	OHSAS 18001	TLC
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Specification

Nominal Voltage	12V	
Nominal Capacity(10HR)	150.0AH	
Dimension	Length	485±3mm (19.09 inches)
	Width	170±2mm (6.69 inches)
	Container Height	240±2mm (9.45 inches)
	Total Height (with Terminal)	240±2mm (9.45 inches)
Approx Weight	Approx 41.7 Kg (91.93 Ibs)	
Terminal	T11	
Container Material	ABS	
Rated Capacity	161.4 AH/8.07A	(20hr ,1.80V/cell,25°C/77°F)
	150.0 AH/15.0A	(10hr,1.80V/cell,25°C/77°F)
	133.5 AH/26.7A	(5hr,1.75V/cell,25°C/77°F)
	121.3 AH/40.4A	(3hr,1.75V/cell,25°C/77°F)
	97.2 AH/97.2A	(1hr,1.60V/cell,25°C/77°F)
Max. Discharge Current	1500A (5s)	
Internal Resistance	Approx 2.6mΩ	
Operating Temp.Range	Discharge	-15~50°C (5~122°F)
	Charge	0~40°C (32~104°F)
	Storage	-15~40°C (5~104°F)
Nominal Operating Temp. Range	25±3°C (77±5°F)	
Cycle Use	Initial Charging Current less than 45.0A. Voltage 14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage 13.5V~13.8V at 25°C(77°F)Temp. Coefficient -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Series batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

Constant Current Discharge (Amperes) at 25 °C (77°F)

F.V/Time	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	223.2	186.9	164.1	119.8	94.3	76.6	48.8	37.4	30.5	24.9	21.3	18.4	16.3	8.03
1.80V/cell	282.5	225.5	192.4	139.5	109.6	85.7	52.6	39.9	33.1	26.4	23.4	19.5	17.6	8.14
1.75V/cell	310.6	245.7	207.9	144.4	114.2	89.4	54.2	41.3	34.5	27.0	24.6	20.3	18.1	8.52
1.70V/cell	338.7	262.8	217.2	150.7	117.4	92.6	56.7	43.2	33.5	27.7	26.3	20.9	19.4	8.77
1.65V/cell	364.3	278.9	231.3	158.8	120.6	95.8	58.4	44.5	36.3	28.9	27.9	21.8	19.9	9.08
1.60V/cell	394.0	298.7	246.8	167.1	125.7	98.3	60.7	45.6	37.3	29.4	28.3	22.5	20.5	9.47

Constant Power Discharge (Watts) at 25 °C (77°F)

F.V/Time	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	411.7	350.6	309.1	225.7	180.5	146.9	93.1	73.7	59.3	48.6	43.3	35.3	29.3	16.3
1.80V/cell	518.6	416.6	360.3	262.6	208.1	163.2	99.0	77.4	64.1	52.7	45.6	36.9	30.1	16.9
1.75V/cell	562.3	450.2	384.7	270.4	214.8	169.6	102.9	78.5	64.2	53.5	46.8	37.8	30.8	17.2
1.70V/cell	604.8	477.6	401.6	280.9	223.2	174.8	107.3	79.9	65.9	54.7	47.5	39.4	31.5	17.8
1.65V/cell	648.2	504.5	424.5	294.1	227.3	179.9	110.6	84.7	66.8	56.3	48.9	40.8	32.2	18.3
1.60V/cell	692.4	532.9	447.6	308.6	234.7	185.2	113.5	86.4	69.7	57.4	49.5	41.4	32.9	18.8

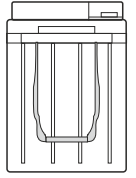
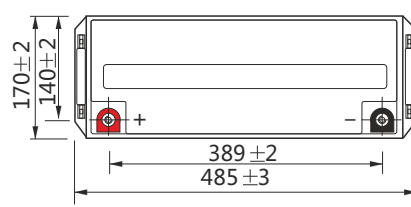
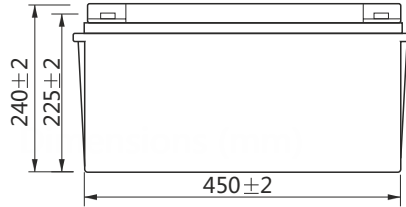
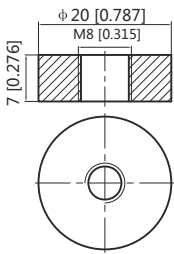
Note The above data are average values, and can be obtained with 3 charge/discharge cycles. These are not minimum values.

CONCEPT GEL BATTERY

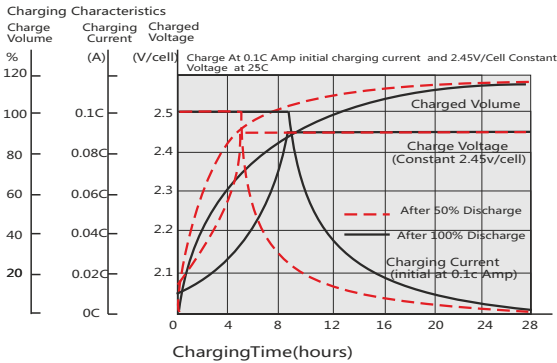
DEEP CYCLE GEL BATTERY CP150B 12V150AH

Dimensions

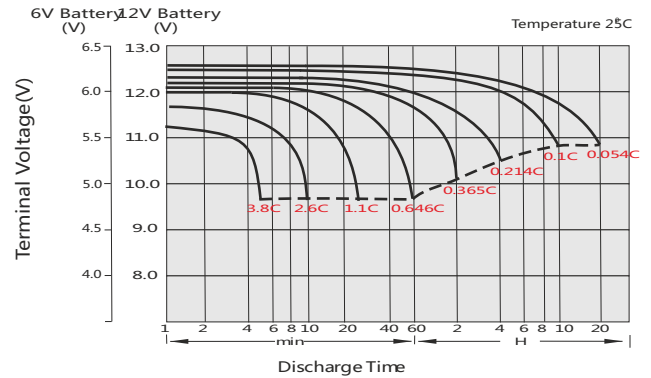
T11 Terminal Unit: mm [inches]



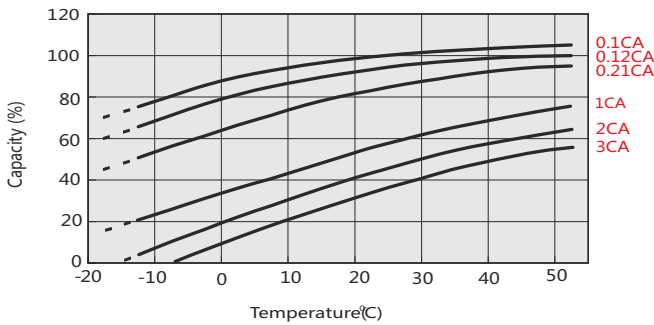
Charging Characteristics (cycle use)



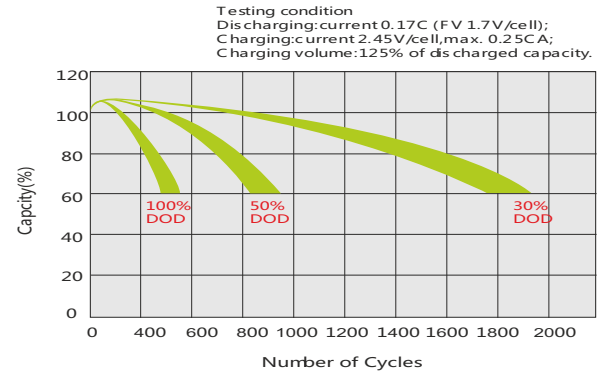
Discharge Characteristics



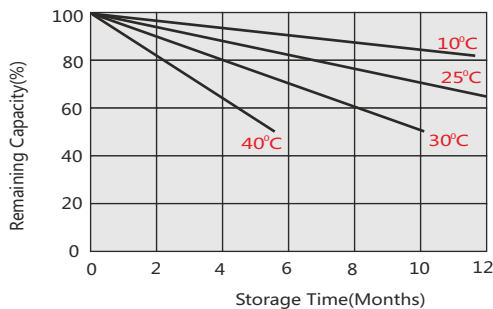
Temperature Effects in Relation to Battery Capacity



Cycle Life in Relation to Depth of Discharge



Self Discharge Characteristics



No supplementary charge required
(Carry out supplementary charge before use if 100% capacity is required.)

Supplementary charge required before use. Optional charging way as below:
1. Charged for above 3 days at limited current 0.25 CA and constant voltage 2.25V/cell.
2. Charged for above 20 hours at limited current 0.25 CA and constant voltage 2.45V/cell.
3. Charged for 8~10 hours at limited current 0.05 CA.

Supplementary charge may often fail to recover the capacity.
The battery should never be left standing till this is reached.

CONCEPT SOLAR CONTROLLER

SUN-CP100 Intelligent Wireless Dimming LED Solar Charge Controller



SUN-CP100



Features

- New design of wireless remote-control can modify the controller parameter and read the system message according to the handheld device.
- Digital high precision constant-current control, the maximum efficiency can reach 96%.
- The working current can be adjusted from 0.15A to 3.3A, the regulating precision is 30mA.
- High dynamic performances of load insure current output stability even though the battery voltage and load sudden change.
- 3 section time frame dimming function design, work time can be set range from 0h to 15 hours, power can be set range from 0% to 100%.
- Intelligent power mode, the load power can be adjust automatically according to the battery power, can extend the maximum working time of the battery.
- Record the system status, can record at a max 7 days and monitor the whole system.
- The true constant current but not limited the current, insure the current output stability thus decrease LED light failure, increase the LED service life.
- Metal case, Ip68 waterproof degree, can suitable use in all kinds of bad conditions.
- With modified calculation of charging, the charging efficiency is improved, which lengthen the using time of solar energy.
- Overheat preventing function, above a certain temperature will decrease the load or close the load.
- Various system protection function. Including the battery reverse connection, LED short circuit, open circuit protection and so on.

CONCEPT SOLAR CONTROLLER

SUN-CP100 Installation dimension



The Parameters

Parameter Name	Parameter Value SUN-CP100
System voltage	12V/24V
Output power	50W/12V;100W/24V
Output current	0.15~1.98A
No-load loss	9mA/12V; 12mA/ 24V
Charging current	15A
Solar input voltage	<55V
Efficiency of constant current	90%~96%
Overvoltage protection	16.0V; x2/24V
Charging limits voltage	15.5V; x2/24V
Equal charging voltage	15.2V; x2/24V (25°C)
Equal charging interval	30 days
Ascending charging voltage	14.2V~ 15.0V; x2/24V (25°)
Float charging voltage	13.2~14.0; x2/24V (25°)
over-discharging recover voltage	12.0V~ 13.0V; x2/24V
over-discharging voltage	9.8V~11.8V; x2/24V
Temperature compensation	-4.0mv/°C/2V;
Current precision	±3% (Load current>300mA)
Load output voltage	<60V
over-temperature protection	ambient temperature: 80°C (load drop power)
overheat protection	internal temperature: 120°C (Load off)
light control voltage	5V~11V
light control delay	5min~50min
Working temperature	-35°C~+65°C
Protection level	Ip68
Weight	280g
Dimension (mm)	100*82*20 (mm)

CONCEPT WIND CONTROLLER

WIN-CP400 Intelligent Wind Turbine Charge Controller



WIN-CP400

The Parameters

Product Model	Parameter Value WIN-CP400
Rated battery voltage	24V
Rated wind turbine input pw	400W
Maximum Wind Turbine input pw	600W
Stop charging voltage point	29V
Recovery charging voltage point	17A
Dimension (L x W x H)	120x105x49 mm
Net weight	0.8 kg
Display mode	LED nixie tube display
Cooling	Aluminum alloy shell heat dissipation
Level of protection	Ip53
Quiescent current	≤20mA
Protection functions	Over-charge, anti-reverse-connection, over-voltage, manual brake, automatic brake; lightning protection
Working temperature	-20°C~+55°C
Working humidity	0%~93% (without condensation)
Working altitude	≤4000 m



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