

We offer Energy Efficient Solutions...



Energy Efficiency & Sustainability through innovative technologies

STREET LIGHTING BROCHURE



CRYSTAL SOLAR ENERGYTM
POWER SOLUTIONS

Commercial, Domestic & Batteries

www.crystalsolarenergy.com.au



HOW CAN WE HELP YOU, AND WHAT MAKES US DIFFERENT?

Crystal Solar Energy is founded and based on the philosophy of providing Energy Efficiency and Sustainability through innovative technologies and processes. Energy efficiency simply means using less energy to perform the same task – that is, eliminating energy waste. Energy efficiency brings a variety of benefits: reducing greenhouse gas emissions, reducing demand for energy imports, and lowering our costs on a household and economy-wide level. While renewable energy technologies also help accomplish these objectives, improving energy efficiency is the cheapest – and often the most immediate – way to save money. There are enormous opportunities for efficiency improvements in every sector of the economy, whether it is buildings, transportation, industry, or energy generation.

Unlocking the potential of energy efficiency, cogeneration and demand management requires specialists that know how to deliver projects while supporting their clients' core goals.

Identifying energy efficiency opportunities at specific buildings and sites and working with clients to improve facilities, equipment, processes and behaviour. Developing and manufacturing advanced energy efficient products using proven methodologies to identify areas of energy savings and provide solutions.

Crystal Solar Energy is actively exploring new technologies and products to improve energy efficiency and sustainability. We welcome the opportunity to explore how Crystal Solar Energy can work for you.

STREET LIGHTING BROCHURE

CSE Sustainable Solutions - a division of Crystal Solar Energy is actively involved in energy efficient lighting.

We offer a range of Street Lighting solutions with camera

These products are developed and tested thoroughly and comes with a robust warranty. This product literature will be updated as more products are developed and made available.

SOLAR LED LIGHT



The All-in-One and All-in- Two solar LED street light is the newest technology for solar street lights. With its all-in-one / two design, its solar panel, LED lamp, lithium battery and charging controller are all integrated into one single body or Two bodies. With this new technology, there is no need for cables or any digging of underground spaces to store its battery. Installation can also be done very quickly. Additionally, this solar LED street light is comprised of the latest intelligent lighting system.

The lamp works automatically based on day and night. It has three settings including motion sensor, time schedule and internet control, to meet different requirements. There will be no need for unnecessary settings after installation. Compared to traditional solar street lights, it is much easier to install and transport, with a longer lifespan than lead-acid batteries and is also cheaper to maintain.

All in One Solar LED Light



SPECIFICATION

Model NO.	DEL-DN4-40	DEL-DN4-60	DEL-DN4-80	DEL-DN4-100	DEL-DN4-120
LIGHTING					
Efficiency	200-240LM/W				
LED Chip	Philips 3030 (certified per IESNA LM-80 TM-21)				
CCT	3000-6000K				
Lifespan	50 000 hours (12 years)				
Max power	40W	60W	80W	100W	120W
Nominal power	20W	30W	40W	50W	60W
Typical Luminous Flux	4000-4800LM	6000-7200LM	8000-9600LM	10000-12000LM	12000-14400LM
Beam angle	80°x150°				
Working way	Motion Sensor/Time Schedule				
PHOTOVOLTAIC PANEL					
Technology	Mono-crystalline photovoltaic panels				
Power of PV Module	50Wp	70Wp	100Wp	150Wp	180Wp
Lifespan	25 years				
BATTERY					
Technology	LiFePO4(Lithium Iron Phosphate)				
Lithium Battery	256WH	384WH	512WH	640WH	768WH
Autonomy	3 Rainy days				
Lifespan	12 years				
CHARGING CONTROLLER					
Technology	MPPT(Maximum Power Point Tracking)				
Lifespan	12 years				
GENERAL					
Dimensions	711*372* 84MM	1027*372* 84MM	1495*372* 84MM	1027*1117* 84MM	1495*1117* 84MM
Weight	10.4KG	13.5KG	17.8KG	22.7KG	27.5KG
IP	IP66				
Working Temperature	-20℃ to +60℃				
Recommended Installation Height	4-6M	6-8M	7-9M	8-10M	10-12M
Recommended Installation Distance	15-25M	20-30M	25-35M	30-40M	35-45M
Recommended Diameter of Top mounting	55-60MM	55-60MM	55-60MM	55-60MM	55-60MM



CSE SUSTAINABLE SOLUTIONS

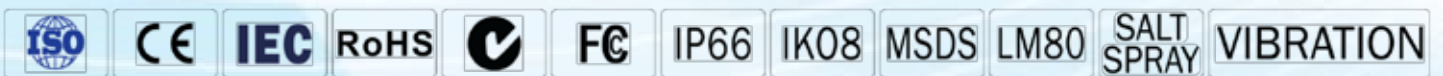
All in Two Solar LED Light



SPECIFICATION

Model NO.	DEL-DS4-40	DEL-DS4-60	DEL-DS4-80	DEL-DS4-100	DEL-DS4-120
LIGHTING					
Efficiency	200-240LM/W				
LED Chip	Philips 3030 (certified per IESNA LM-80 TM-21)				
CCT	3000-6000K				
Lifespan	50 000 hours (12 years)				
Max power	40W	60W	80W	100W	120W
Nominal power	20W	30W	40W	50W	60W
Typical Luminous Flux	4000-4800LM	6000-7200LM	8000-9600LM	10000-12000LM	12000-14400LM
Beam angle	80°x150°				
Working way	Motion Sensor/Time Schedule				
PHOTOVOLTAIC PANEL					
Technology	Mono-crystalline photovoltaic panels				
Power of PV Module	50Wp	70Wp	100Wp	150Wp	180Wp
Lifespan	25 years				
BATTERY					
Technology	LiFePO4(Lithium Iron Phosphate)				
Lithium Battery	256WH	384WH	512WH	640WH	768WH
Autonomy	3 Rainy days				
Lifespan	12 years				
CHARGING CONTROLLER					
Technology	MPPT(Maximum Power Point Tracking)				
Lifespan	12 years				
GENERAL					
Dimensions	711*372* 84MM	1027*372* 84MM	1495*372* 84MM	1027*1117* 84MM	1495*1117* 84MM
Weight	12.4KG	15.1KG	19.6KG	24.0KG	28.8KG
IP	IP66				
Working Temperature	-20°C to +60°C				
Recommended Installation Height	4-6M	6-8M	7-9M	8-10M	10-12M
Recommended Installation Distance	15-25M	20-30M	25-35M	30-40M	35-45M
Recommended Diameter of Top mounting	55-60MM	55-60MM	55-60MM	55-60MM	55-60MM

60 WATT ALL IN ONE SOLAR STREET LIGHT WITH 4G CAMERA





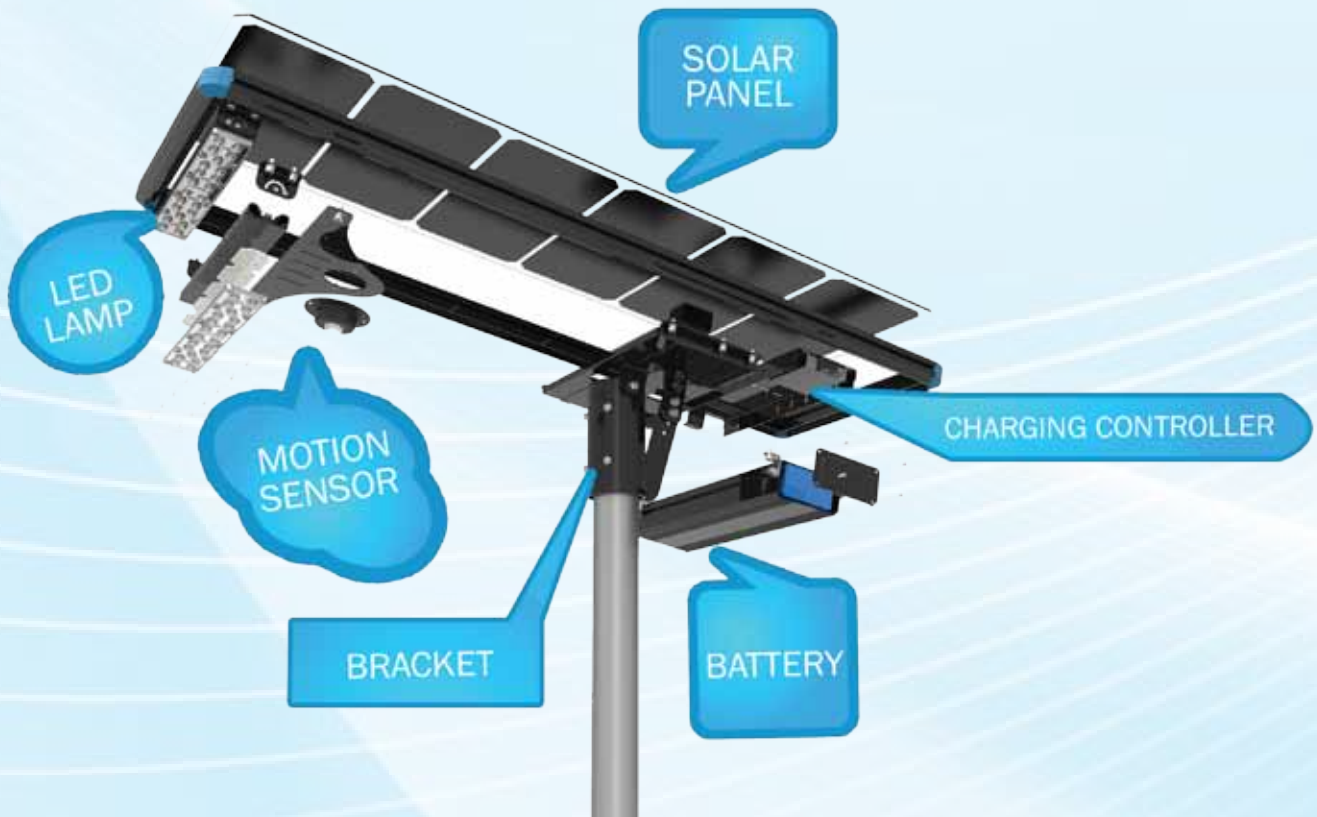
The All in One solar LED street light is a new technology for solar street lights. With its all-in-one design, its solar panels, LED lamp, lithium battery and charge controller are integrated into one single body.

With this new technology, there is no need for cables or any digging of underground spaces to store its battery. Installation can also be done quickly. This solar LED street light is comprised of latest intelligent lighting system. The lamp turns on or off automatically based on day or night. It has three settings including a motion sensor, time schedule and time control, to meet different requirements. There will be no need for unnecessary settings after installation.

Compared to traditional solar street lights, it is much easier to transport to site and install, with a longer life than lead-acid batteries and cheaper to maintain.

In addition, you can fix a 4G camera to this unit for monitoring through day and night with recording facility.

ASSEMBLY



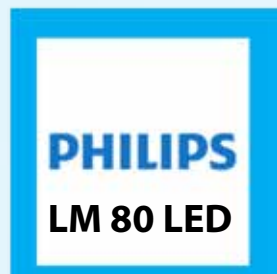
KEY FEATURES



All products are designed by a R&D team in Germany and is a patented. This is a stand out compared to other products in the market.



Use class A monocrystalline solar panels. Its 24% charging efficiency is much higher than normal monocrystalline solar panels which have 17% efficiency.



High brightness and low decay, LM 80 certified Philips LED is used in these lamps. Philips LED can provide 99.3% brightness after 10,000 hours of operation.



Level A Standard LiFePO4 lithium battery is used in these lamps. It has 5 times longer life span of lead acid batteries with high depth of discharge and low/ high temperature protection providing increased lifespan to 12 years



As the heart of the solar LED street light, the controller has played an important role. The MPPT charging controller used has a charging efficiency 20% - 30% higher than PWM solution. It also has an over current / voltage, overheating protection.



This lamp has the latest intelligent lighting system. The lamp can work automatically based on day and night. It has three working modes (Motion Sensor/ Time Schedule / Internet Control) according to different requirements. No settings required after installation.



The bracket angle can be adjusted +/- 30 degrees, which ensures that solar panels can be adjusted also to meet different latitude and longitude requirement based on location.



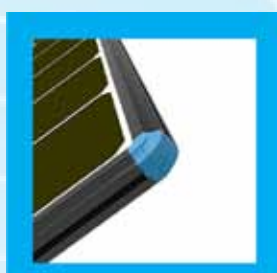
The LED module can also be adjusted + /- 60 degrees, which ensures different beam angle lighting effects based on applications.



All components are easy-plug, which makes it easy to replace parts (battery, controller, LED module). Decreases the maintenance costs.



The LED lamps are designed with solo anti-theft screws that can be released only with a specific tool. It is impossible to steal the lamp from the pole.



The swing frame structure design for the light is highly resistant to high wind speeds. The maximum rated wind speed is 176km/ hour

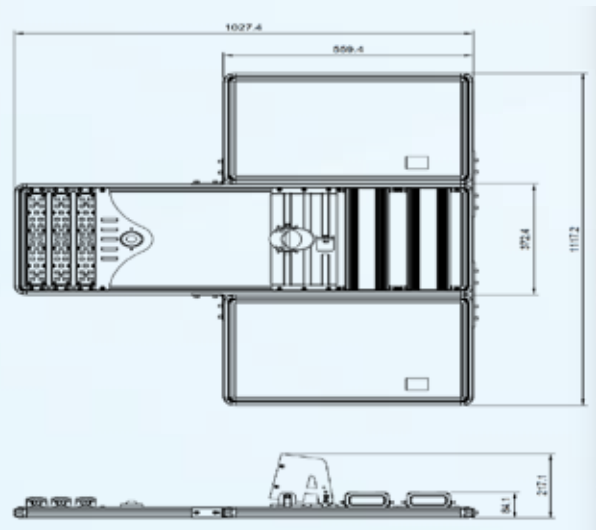


The powder coated aluminium frame construction provides the best anti-rust solution.

PRODUCT PICTURE



PRODUCT SIZE



DATA SHEET

Model NO.	DEL-DN4C-60
LIGHTING	
Efficiency	200-240LM/W
LED Chip	Philips 3030 (certified per IESNA LM-80 TM-21)
CCT	3000-6000K
Life span	50 000 hours (12 years)
Max power	60W
Nominal power	30W
Typical Luminous Flux	6000-7200LM
Beam angle	80°x150°
Working way	Motion Sensor/Time Schedule
PHOTOVOLTAIC PANEL	
Technology	Mono-crystalline photovoltaic panels
Power of PV Module	150Wp
Lifespan	25 years

Model NO.	DEL-DN4C-60
BATTERY	
Technology	LiFePO4(Lithium Iron Phosphate)
Lithium Battery	640WH
Autonomy	3 Rainy days
Lifespan	12 years
CHARGING CONTROLLER	
Technology	MPPT(Maximum Power Point Tracking)
Lifespan	12 years
GENERAL	
Dimension	1027*1117*84MM
Weight	22.7KG
IP	IP66
Working Temperature	-20°C to +60°C
Recommended Installation Height	6-8M
Recommended Installation Distance	20-30M
Recommended Diameter of Top mounting	55-60MM

LUX DATA



4 G CAMERA SPECIFICATION

2MP 4G TF H265 IP Camera

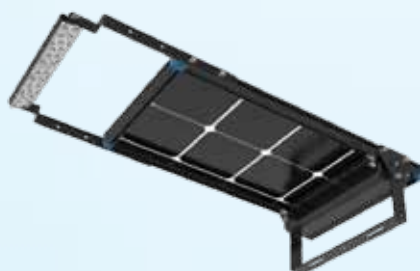
Feature:

- Structure: Embedded RTOS,MSTAR (MC316DM)
- Sensor: 1/2.7" CMOS SENSOR(SC2235)
- Video: H265/H.264 compression, Dual Streaming
- Resolution: Main Stream:1920*1080(2MP),
Sub-stream:D1,VGA,640*360,CIF
- Frame Rate: 2MP 25fps(real time),support 1~25fps adjustable
- Support: 4G,TF



Specification	DEL--MB7/4G
Structure	MSTAR MC316DM + 2MP 1/2.7"SC2235
Minimum Illumination	Color 0.01 Lux@ F1.2, Black-white 0.005 Lux@F1.2
DWDR	Support
SNR	≥ 50 dB
LENS	4mm/6mm/8mm/12mm optional
IR Distance	30M
Coded Format	H.264 Main Profile/High Profile H.265/HEVC Main Profile/High Profile
Image Resolution	Main Stream: 1920*1080, 1280*720, 1-25fps
	Sub-stream: D1,VGA, 640*360, 1-25fps
Video Compression Rate	500Kbps-4Mbps continuously adjustable, support CBR/VBR
AUDIO	optional
Audio Frequency Code	G.711A audio standard,Support two way audio, Support audio and video synchronization
Protocol	Support DHCP/P2P,ect
4G	Need to specify (optional) network type: FDD-LTE/TDD-LTE/WCDMA/HSPA+/TD-SCDMA/GSM/GPRS/EDGE Working frequency: LTE B1/B3/B8/B38/B39/B40/B41 WCDMA 2100/900MHz TD-SCDMA B34/B39 GSM/GPRS/EDGE:900/1800MHz Speed: FDD-LTE/TDD-LTE:Upstream50M/Downstream 150Mbps HSPA+:Upstream5.76M/Downstream 21Mbps TD-SCDMA:Upstream2.2Mbps/Downstream 2.8Mbps
Storage	Support TF card, Max. 128G
Phone Client	Support iPhone、Android
Business Function	Support IE6.0 and above (equipment embedded Web Server)browser,support front end storage playback/ download,support unit client software,support CMS platform system application
Feature	support day/night (support IR-CUT) ,support LDR signal linkage
power supply	DC12V, 8W Max
Size	140*140*100mm
Package Size	150*150*140mm

All in One Billboard LED Light



Outdoor billboards Solar LED lights are usually installed to illuminate the billboards. Solar LED billboard light has been designed to meet this requirement. With its all-in-one design, its solar panel, LED lamp, lithium battery and charging controller are all integrated into one single body. With this technology there is no need for cables or electricity. It is easy to install and works automatically based on day and night. It retains full brightness throughout the night and is a great choice for outdoor advertisements.

SPECIFICATION

Model NO.	DEL-DB1-20
LIGHTING	
Efficiency	200-240LM/W
LED Chip	Philips 3030 (certified per IESNA LM-80 TM-21)
CCT	3000-6000K
Lifespan	50 000 hours (12 years)
Max power	20W
Nominal power	10W
Typical Luminous Flux	2000-2400LM
Beam angle	80°x150°
Working way	100% brightness always
PHOTOVOLTAIC PANEL	
Technology	Mono-crystalline photovoltaic panels
Power of PV Module	50Wp
Lifespan	25 years

Model NO.	DEL-DB1-20
BATTERY	
Technology	LiFePO4(Lithium Iron Phosphate)
Lithium Battery	256WH
Autonomy	3 Rainy days
Lifespan	12 years
CHARGING CONTROLLER	
Technology	MPPT(Maximum Power Point Tracking)
Lifespan	12 years
GENERAL	
Dimension	933*372*84MM
Weight	10.9KG
IP	IP66
Work Temperature	-20°C to +60°C

All in One Solar LED Flood Light



The Solar LED Flood light has the same application as the normal LED flood lights, however it has a distinct advantage, as there is no need for cables or electricity. With its all-in-one de-sign, its solar panel, LED lamp, lithium battery and charging controller are all integrated into one single body. It is easy to install and works automatically based on day and night. It re-tains full brightness throughout the night and is a great choice for various events that require flood lighting. In addition, it has three beam angles(60°/90°/80°x150°) for choice, which can meet all flood lighting requirements based on different applications.

SPECIFICATION

Model NO.	DEL-DF1-20
LIGHTING	
Efficiency	200-240LM/W
LED Chip	Philips 3030 (certified per IESNA LM-80 TM-21)
CCT	3000-6000K
Lifespan	50 000 hours (12 years)
Max power	20W
Nominal power	10W
Typical Luminous	2000-2400LM
Beam angle	60°/90°/80°x150°
Working way	100% brightness always
PHOTOVOLTAIC PANEL	
Technology	Mono-crystalline photovoltaic panels
Power of PV Module	50Wp
Lifespan	25 years

Model NO.	DEL-DF1-20
BATTERY	
Technology	LiFePO4(Lithium Iron Phosphate)
Lithium Battery	256WH
Autonomy	3 Rainy days
Lifespan	12 years
CHARGING CONTROLLER	
Technology	MPPT(Maximum Power Point Tracking)
Lifespan	12 years
GENERAL	
Dimension	799*372*90MM
Weight	10.6KG
IP	IP66

MOSQUITO/ FLIES REPELLANT LIGHT



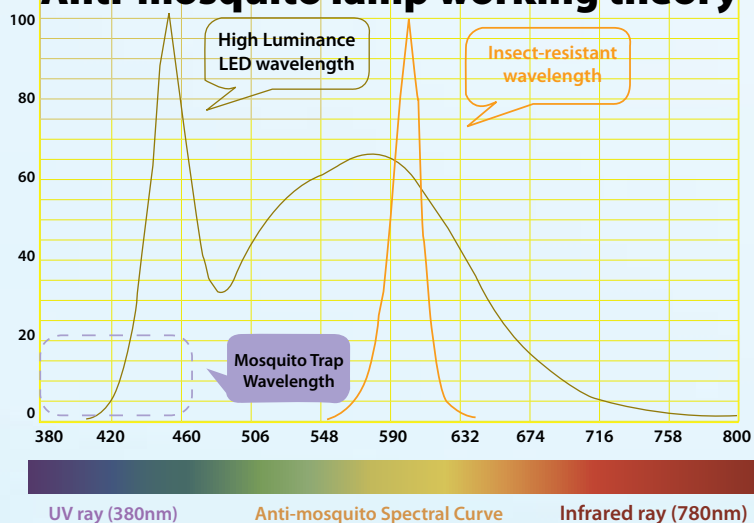
Insect-resistant
95%
After test, anti-mosquito lamp's effect up to 95.9%
The most recorded for anti mosquito lamp is 97.7%

Energy Saving
1/3 of fluorescent light
long life span - 50,000 hours

Brightness
1.3
5meter range of illumination than the average LED



Anti-mosquito lamp working theory



TECHNOLOGY USED IS PHOTOAXIS OF MOSQUITOES WHICH HAS THE BIOLOGICAL NATURE TO FAVOUR THE BLUE VIOLET LIGHT BELOW THE 500nm WAVELENGTH AND ARE AFRAID OF YELLOW LIGHT. THIS WAVELENGTH IS BETWEEN 545 - 630 nm

- ✓ 95-97% EFFICIENT IN REPELLING MOSQUITOES
- ✓ 50, 000 HOURS OPERATING LIFE - (11 YEARS OPERATING FOR 12 HOURS AT NIGHT)
- ✓ ECO FRIENDLY - NOT HARMFUL TO HUMANS
- ✓ WORKS ON SPECIAL LIGHT FREQUENCY
- ✓ ONLY 5 WATTS POWER CONSUMPTION
- ✓ JAPANESE TECHNOLOGY
- ✓ BIS & AUSTRALIAN STANDARDS CERTIFIED - FOR NO HARM TO HUMANS
- ✓ NO HARMFUL BLUE RAY . BLUE RAY RATION <0.1%
- ✓ EASY TO INSTALL IN STANDARD LAMP HOLDER
- ✓ THIS REPELS HOUSE FLIES AS WELL (TO BE USED AS PER INSTRUCTIONS)

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