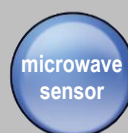




Shenzhen Trismart Lighting Technology Co., Ltd. is a research and development, design, production and sales of private high-tech enterprises. Company's management and technical team has 20 years' experience in the development and design of industrial lightings, professional lightings and lighting engineering systems. The chairman of the company, Dr. Chen, is the member of China Lighting Society, the Deputy Secretary General of the Shenzhen Lighting Appliance Association and a senior expert of Shenzhen Lighting Society. Trismart Lighting is a cooperative supplier of European Union led street lamps, a network supplier of Royal Shell (shell) and a network supplier of large enterprises such as Sinopec, PetroChina, State Grid, Datang Electric Power and Huadian Group.

WWW.SZTRISMART.COM



Ultra-bright vertical Solar Panel Led Street Light

SZG575VH **ultra-bright** hexagon solar panel led street light is an intelligent solar lighting system with easy to purchase, low shipping costs, quick installation and simple maintenance. The system only consists of two main parts: one is vertical solar panel modular, the other is lamp head part including street light, built in lithium phosphate battery, built in solar controller and integrated microwave sensor.

It adopts ultra-bright 3030 led chip with 260 lm/W luminous efficiency which can increase the brightness by more than 60%, low temperature powerful lithium iron phosphate battery which can discharge at -25°C reliably, MPPT intelligent solar controller with IPT, and monosilicon solar panels with 23%-24% conversion efficiency.



super brightness



MPPT intelligent
solar controller



microwave sensor



Li-battery
management system



2.4G remote
operation



Li-battery
monitor system

Trismart Lighting

Ultra-bright 3030 led chip



Ultra-bright 3030 led chip

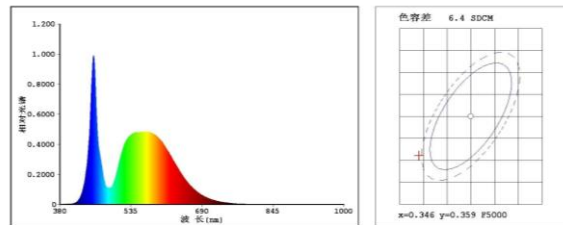
- **luminous efficiency for led chip: 260 lm/W**
- **light efficacy for luminaire: 220 lm/W**
- **energy efficiency rating: far beyond class 1**
- **energy saving rate: 60%**
- The thermal resistance is only 3°C which the heat output is 20% of the rated value and its average service life is up to 100000 hours.
- It can reduce and save more than 30% power of luminaire to reach the same luminance and illumination effect.



EVERFINE 远方

Test report
远方 (EVERFINE) LEDspec 光电测试报告 第 4 页 共 4 页

光源光谱测试报告



颜色参数:

色品坐标(2度): $x=0.3351$ $y=0.3501$ / $u'=0.2052$ $v'=0.4824$ $duv=3.408e-003$
 相关色温: $T_c=5016K$ 主波长: $\lambda_d=558.8nm$ 色纯度: $Purity=5.6\%$
 色比: $R=14.0\%$ $G=82.2\%$ $B=3.8\%$ 峰值波长: $\lambda_p=453.8nm$ 半宽度: $\Delta\lambda_d=17.0nm$
 显色指数: $Ra=75.7$
 R1 =73.43 R2 =80.81 R3 =84.09 R4 =75.21 R5 =73.43
 R6 =72.47 R7 =84.72 R8 =61.34 R9 =-16.47 R10=52.26
 R11=71.30 R12=41.85 R13=75.02 R14=90.93 R15=69.01
 TM30 参数: $R_f = 74.1$, $R_g=93.1$

光度参数:

光通量 $\Phi = 54.53 lm$ 光效: $256.29 lm/W$ $\Phi_e = 163.5 mW$

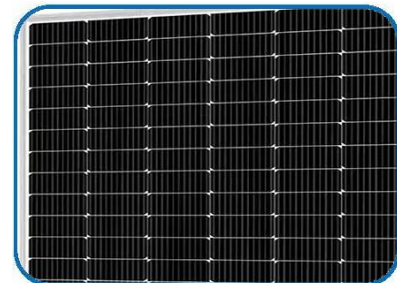
电参数:

正向电压 $V_F = 5.334 V$ 正向电流 $I_F = 39.90 mA$ 功率 $P = 212.8 mW$ Ch1
 分级: **[OUT] 白光分类: ANSI_5000K

仪器状态: 积分时间 $T=196.00ms$ $I_p=26005 (40\%)$ [HAAS1200_V1_USB] V2.00.288

High efficiency mono solar panel

- high efficiency mono solar wafers
- solar conversion efficiency: 23%-24%
- wafer specification: 182*182 mm
- lifespan: ≥ 25 years
- Average attenuation speed: 0.6%
- 25 years maximum output power attenuation: 15%



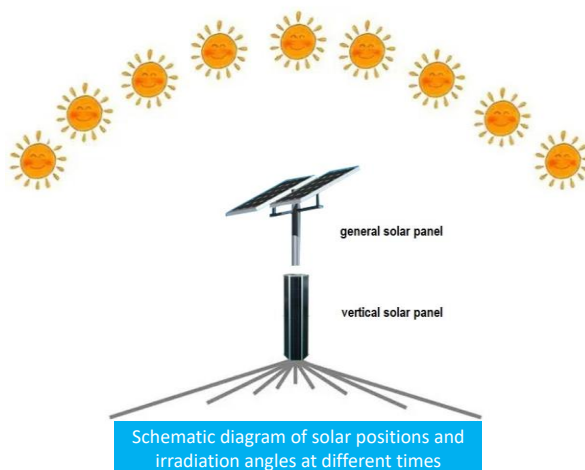
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Vertical solar panel modular

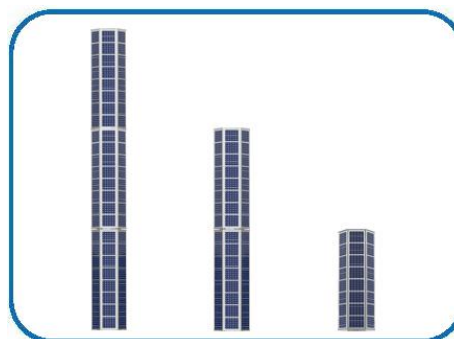


Hexagon vertical mono solar panel from Taiwan

- It has obtained the patent authorization from the State Intellectual Property Office in China.
Patent No.: ZL 2021 2 0422526.4
- Solar conversion efficiency: 23%-24%
- Retrofit the old lights without replacing the poles.
- 6 slim solar panels are fixed tightly on a hexagon frame so that it ensures 50% of solar panels will face to sunshine at any time of the day.
- The vertical solar cylinder adopts whole modular design concept for easy installation. No welding and assembly of solar panels at the installation site is required.
- Resistance to hail and typhoon
- It can reduce sand accumulation on surface and is especially suitable for sandy areas.
- It can reduce snow falling on solar panel in winter and offer more energy.
- Easy to clean and reduce the maintenance cost
- **Light weight and short length(no less than 1.2m) for lower international transportation costs.**



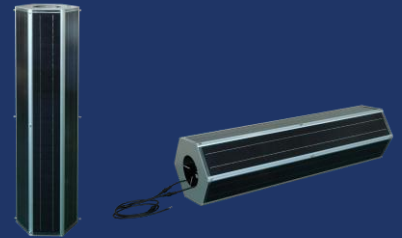
physical photo of vertical solar panel modular



model picture of vertical solar panel modular

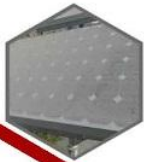
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Vertical solar panel modular



Modular design

- Modular design for power combination and installation easily.
- It can be directly converted into solar street lamps on the old lamp pole to reduce the cost.



Dust prevention accumulation

- Solar panels are installed vertically to reduce the accumulation of dust and bird excrement, and maintain the full absorption of solar energy.
- Especially suitable in desert and dusty areas



Snow prevention accumulation

- Solar panels are installed vertically to reduce snow cover.
- It can maintain a high solar energy absorption capacity in snow winter.



360° full-range charging

- Six solar panels are coated with lamp poles to ensure that 50% of the solar panels are illuminated at any point of the day and can be fully charged at 360°.



Anti-strong wind and hail

- Solar panels are designed and installed vertically with a small windward area to resist strong wind and hail damage.



Easy access for cleaning and maintenance

- Solar panels are vertically designed and installed which do not need to rent a lift to clean solar panels, workers can operate on the ground to reduce maintenance cost.



super brightness



MPPT intelligent
solar controller



microwave sensor



Li-battery
management system



2.4G remote
operation



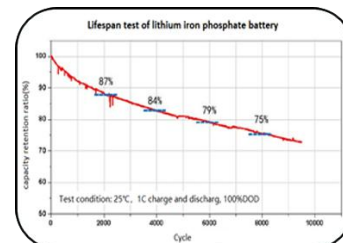
Li-battery
monitor system

Trismart Lighting

Low temperature powerful lithium iron phosphate battery(-25°C)

Low temperature powerful lithium iron phosphate battery

- Adopt low temperature powerful lithium iron phosphate battery which can discharge at -25°C reliably.
- Cycle life: ≥3000 cycles for more than 8 years' lifespan
- **capacity of grade A new cell (32700): ≥6000mAh**
- Less than 3mΩ internal resistance can reduce internal energy loss and offer higher current discharge.
- High temperature discharge efficiency: ≥95%
- Low temperature discharge efficiency: ≥70%
- free of cobalt and other heavy metals
- no fire, no explosion, absolutely safe and reliable
- **Large battery cavity, battery pack built in the lamp head, beautiful coordination and easy maintenance.**



❖ Ultra-large integrated battery box

- Integrated battery box for quick installation of solar light and convenient battery maintenance
- battery box size: 58*15*8.1cm
- It can accommodate ultra-large capacity battery packs, providing longer endurance.
- It can offer good heat dissipation for battery and solar control due to its large size and surface area.



Trismart Lighting

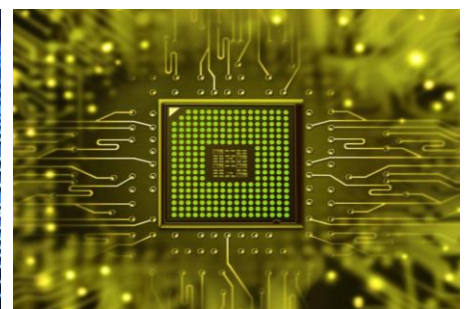
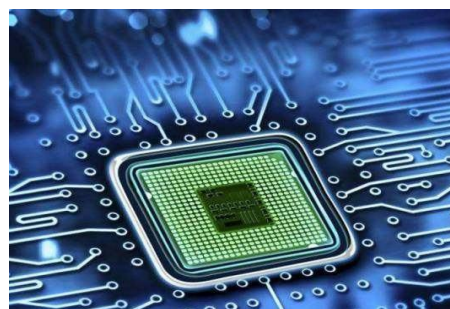
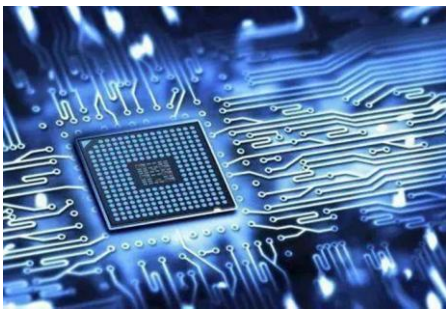
MPPT

intelligent solar controller



Intelligent solar controller

- Adopting MPPT technology to track the maximum power of solar panel
- MPPT efficiency: $\geq 99.9\%$
- Charge conversion efficiency: $\geq 98.5\%$ (MPPT)
- Constant current drive efficiency: $\geq 96\%$ (MPPT)
- IPT(intelligent power technology) can adjust the optimal power according to the weather conditions of the next 7 days and the remaining energy of the battery pack to ensure 365 days' lighting every day.
- Control mode: light control, time control, induction control
- 2.4G remoter optional
- **Solar controller is built in the shell of lamp.**



Intelligent power technology

According to the weather conditions of the next 7 days and the remaining energy of the battery, the power of the light can be adjusted to the optimal value through automatic calculation and scientific evaluation under the premise of ensuring the illumination to meet lighting for 365 days and extend cycle life of battery.

Single monitoring and balanced charging Technology:

Through monitoring the voltage and current of the single cell in real time and optimizing the calculation, solar controller outputs the optimal charging voltage and current to reach the balanced charging for each cell which will prolong lifespan of battery.

Automatic alarm technology:

Collecting the output voltage and current of solar panel, the voltage and current of battery and led modular in real time by intelligent chip, the working state of each part is detected and judged, and the fault alarm occurs automatically. Through different indicator lights, it is convenient for maintenance personnel to judge the problem intuitively and quickly.

Technical parameters:

Parameter items	30W	40W	50W	60W	2*50W	2*60W
Luminous efficiency for led chip (lm/W)	260	260	260	260	260	260
Light efficacy for luminaire (lm/W)	220	220	220	220	220	220
Energy efficiency rating	Class 1	Class 1	Class 1	Class 1	Class 1	Class 1
Energy saving rate	60%	60%	60%	60%	60%	60%
Luminous flux of luminaire (lm)	6000±5%	8000±5%	10000±5%	12000±5%	2*10000±5%	2*12000±5%
Correlated color temperature (K)	3000-6000K	3000-6000K	3000-6000K	3000-6000K	3000-6000K	3000-6000K
Color rendering index (Ra)	≥75Ra	≥75Ra	≥75Ra	≥75Ra	≥75Ra	≥75Ra
Beam angle (°)	145°*70°	145°*70°	145°*70°	145°*70°	145°*70°	145°*70°
LED lifespan (h)	≥100000	≥100000	≥100000	≥100000	≥100000	≥100000
Type of battery	LiFePO4 battery	LiFePO4 battery	LiFePO4 battery	LiFePO4 battery	LiFePO4 battery	LiFePO4 battery
Capacity of battery (Wh)	360	480	670	790	2*670	2*790
Lifespan of battery (cycle)	≥3000	≥3000 cycle	≥3000 cycle	≥3000 cycle	≥3000 cycle	≥3000 cycle
Charging time (h)	6-7	6-7 hrs	6-7 hrs	6-7 hrs	6-7 hrs	6-7 hrs
Continuous rainy day (day)	2-3	2-3	2-3	2-3	2-3	2-3
Lighting mode	light+sectional time control	light+sectional time control	light+sectional time control	light+sectional time control	light+sectional time control	light+sectional time control
Mono solar panel (W)	1*150W	1*200W	2*150W	2*150W	3*200W	3*200W
Material of shell	die-cast aluminum	die-cast aluminum	die-cast aluminum	die-cast aluminum	die-cast aluminum	die-cast aluminum
Discharge temperature (°C)	-25°C - +60°C	-25°C - +60°C	-25°C - +60°C	-25°C - +60°C	-25°C - +60°C	-25°C - +60°C
Charging temperature (°C)	-10°C - +55°C	-10°C - +55°C	-10°C - +55°C	-10°C - +55°C	-10°C - +55°C	-10°C - +55°C
IP protection	IP66	IP66	IP66	IP66	IP66	IP66
Dimension (mm)	600*245*110	600*245*110	790*265*120	790*265*120	790*265*120	790*265*120
Weight (kg)	6.6	7.0	9.5	10.0	2*6.6	2*7.0
Diameter of mounting pipe (mm)	φ60	φ60	φ60	φ60	φ60	φ60
Recommended mounting height (m)	7	8	9	10	9-10	10
Warranty (year)	5 years	5 years	5 years	5 years	5 years	5 years

Note: 1. According to GB 30255-2026: the luminous efficacy of Class 1 energy-efficient luminaire is 170-180 lm/W; for Class 2, it is 145-155 lm/W; and for Class 3, it is 100-110 lm/W.

2. Energy saving rate is compared with the conventional luminaire of class 3 energy efficiency rating.

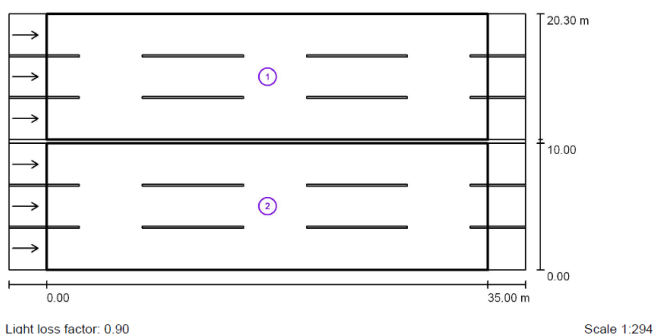


Road lighting simulation calculation:

1. Power of luminaire: 60W

- 1) Road width: 20m
- 2) Pole height: 10m
- 3) Pole spacing: 35m
- 4) Lighting class: ME3a

60w-P0LE SPACE35m w20mH10m / Photometric Results



Calculation Field List

- 1 Valuation Field Roadway 2
Length: 35.000 m, Width: 10.000 m
Grid: 12 x 9 Points
Accompanying Street Elements: Roadway 2.
tarmac: R3, q0: 0.070
Selected Lighting Class: ME3a

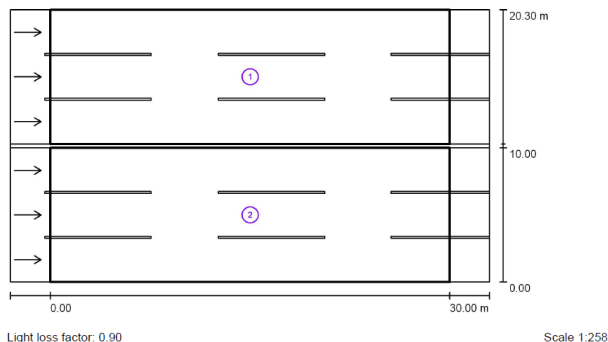
(All lighting performance requirements are met.)

	L_{av} [cd/m ²]	U0	UI	TI [%]	SR
Calculated values:	1.16	0.61	0.72	6	0.80
Required values according to class:	≥ 1.00	≥ 0.40	≥ 0.70	≤ 15	≥ 0.50
Fulfilled/Not fulfilled:	✓	✓	✓	✓	✓

2. Power of luminaire: 50W

- 1) Road width: 20m
- 2) Pole height: 9m
- 3) Pole spacing: 30m
- 4) Lighting class: ME3a

50w-P0LE SPACE30m w20mH9m / Photometric Results



Calculation Field List

- 1 Valuation Field Roadway 2
Length: 30.000 m, Width: 10.000 m
Grid: 10 x 9 Points
Accompanying Street Elements: Roadway 2.
tarmac: R3, q0: 0.070
Selected Lighting Class: ME3a

(All lighting performance requirements are met.)

	L_{av} [cd/m ²]	U0	UI	TI [%]	SR
Calculated values:	1.18	0.51	0.74	7	0.78
Required values according to class:	≥ 1.00	≥ 0.40	≥ 0.70	≤ 15	≥ 0.50
Fulfilled/Not fulfilled:	✓	✓	✓	✓	✓

Specification for vertical solar panel:

Item	120W	150W	200W
Material	Aluminum alloy	Aluminum alloy	Aluminum alloy
Dimensions	265*233*1112mm	265*233*1420mm	265*233*1750mm
Pmax	120W	150W	200W
Vmp	16.5V	18V	18V
Imp	7.3A	8.4A	11.1A
Solar panel	Mono solar panel	Mono solar panel	Mono solar panel
Solar cell efficiency	23%~24%	23%~24%	23%~24%
Cable	M14 1.0m	M14 1.0m	M14 1.0m
Working temp.	-40°C~+85°C	-40°C~+85°C	-40°C~+85°C
Lifespan	25 years	25 years	25 years
Weight	11Kg	17Kg	23Kg
Pole diameter	φ60~120 mm	φ60~120 mm	φ60~120 mm
IP protection	IP66	IP66	IP66
Warranty	5 years	5 years	5 years

Note: Customized production can be made according to the diameter of the lamp pole in the project





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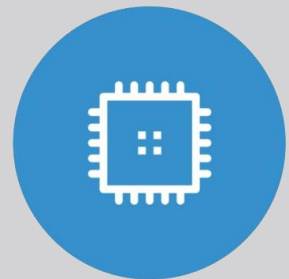
speciality builds higher quality



energy-saving



quality



intelligent

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