Product Benefits

SUNMASTER SLD44-20W

LED Street & Parking Light

Specifications

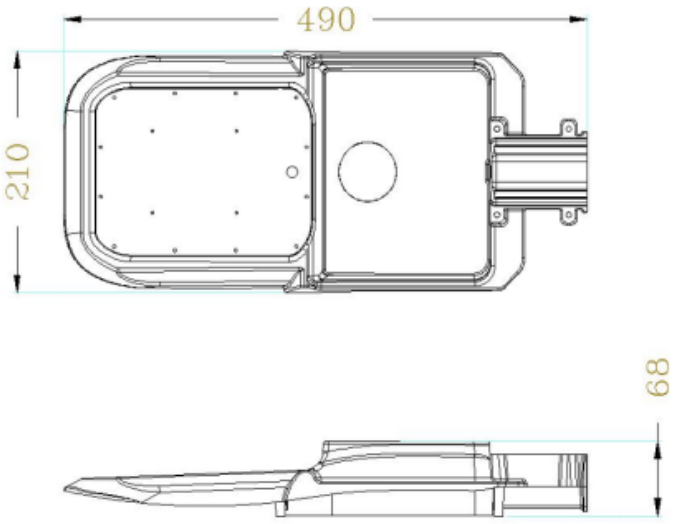
Model	SLD44-20W
Wattage	20W
Voltage	12/24VDC
Brand Chip	USA Bridgelux
Power Factor(PF)	>0.98
Driver Efficiency	>95%
Working Temp.	-30°C to 70°C
Storage Temp.	-30°C to 45°C

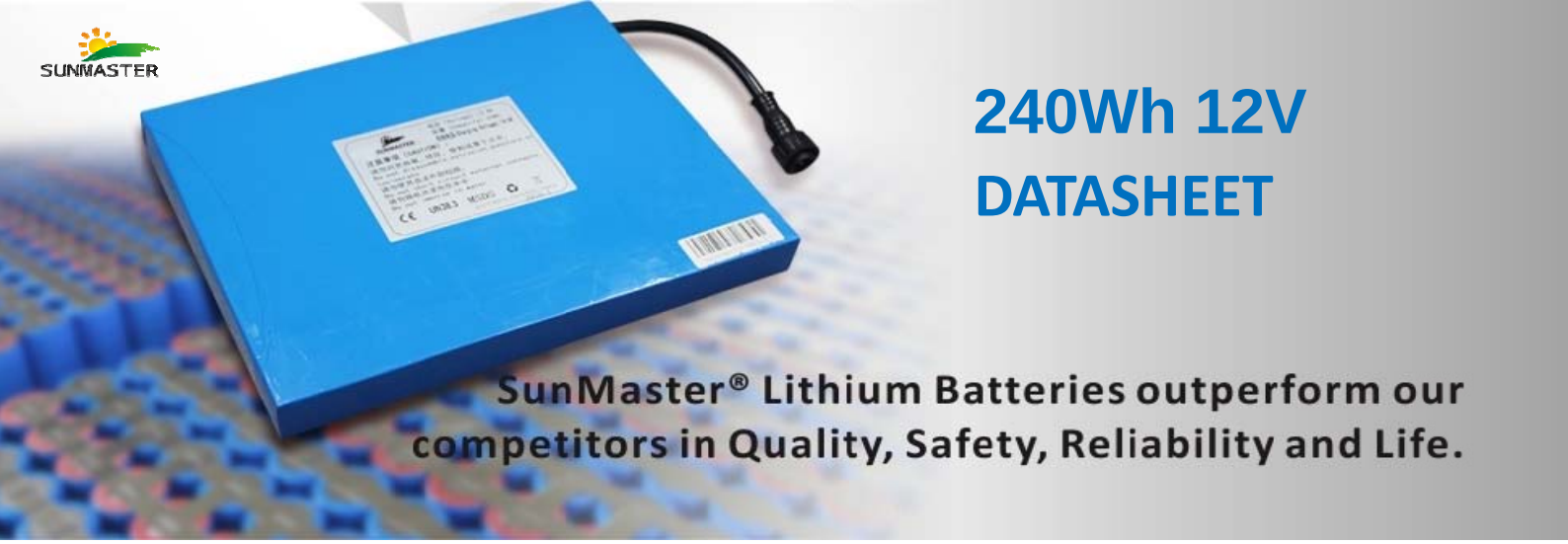
Photometric Specification

Luminous Flux	>3200lm
LED Chip efficiency	>160lm/watt
CRI	>70Ra
CCT	5500k-6500k
Optional Beam Angle	140*75°

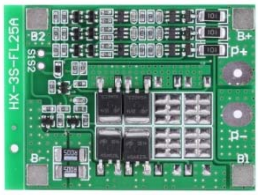
Mechanical Specifications

IP & IK Rating	IP66 & IK10
Life time	100,000 hours
Main body	Die Casing Aluminum
Heat Radiator	Anodized Aluminum
LED module Q'ty	1 modules
Lens Type	Patent ZAG PC
Lens Transmittance	>92%
Fixture Dimension	395*170*50mm/495*212*65mm
Carton Dimension	410*176*60mm/515*220*80mm
Fixing hole size	Diameter 40mm
Net Weight	0.67kgs/1.23kgs(only Lamp)
Gross Weight	0.79kgs/1.5kgs (Only Lamp)





Lithium Cells



BMS Protection Board

Plug-in

CAUTION 1:

Direct connection to DC motors without proper safety protection, motor controllers and external motor voltage clamping systems may result in damage to the internal pack protection system which may result in unsafe situations.

CAUTION 2:

Extra considerations must be given to depths of discharge, operating voltages and currents when designing systems for use at maximum operating temperatures.

Why lithium-iron-phosphate?

Lithium-iron-phosphate (LiFePO4 or LFP) is the safest of the mainstream li-ion battery types. The nominal voltage of a LFP cell is 3,2V (lead-acid: 2V/ cell). A 12,8V LFP battery therefore consists of 4 cells connected in series; and a 25,6V battery consists of 8 cells connected in series.

Why a Battery Management System (BMS) is needed:

1. A LFP cell will be damaged if the voltage over the cell falls to less than 2,5V.
2. A LFP cell will be damaged if the voltage over the cell increases to more than 4,2V.

Lead-acid batteries will eventually also be damaged when discharged too deeply or overcharged, but not immediately. A lead-acid battery will recover from total discharge even after it has been left in discharged state during days or weeks (depending on battery type and brand).

3. The cells of a LFP battery do not auto-balance at the end of the charge cycle.

The cells in a battery are not 100% identical. Therefore, when cycled, some cells will be fully charged or discharged earlier than others. The differences will increase if the cells are not balanced/equalized from time to Time.

In a lead-acid battery a small current will continue to flow even after one or more cells are fully charged (the main effect of this current is decomposition of water into hydrogen and oxygen). This current helps to fully charge other cells that are lagging behind, thus equalizing the charge state of all cells.

The current which flows through a fully-charged LFP cell however, is nearly zero, and lagging cells will therefore not be fully charged. Over time the differences between cells may become so extreme that, even though the overall battery voltage is within limits, some cells will be destroyed due to over or under voltage.

A LFP battery therefore must be protected by a BMS that actively balances the individual cells and prevents Under - and over-voltage.

Rugged

A lead-acid battery will fail prematurely due to sulfation:

- If it operates in deficit mode during long periods of time (the battery is rarely, or never at all, fully charged).
- If it is left partially charged or worse, fully discharged (yacht or mobile home during winter time).

A LFP battery does not need to be fully charged. Service life even slightly improves in case of partial charge instead of a full charge. This is a major advantage of LFP compared to lead-acid. Other advantages are the wide operating temperature range, excellent cycling performance, low internal resistance and high efficiency (see below).LFP is therefore the chemistry of choice for very demanding applications.

Efficient

In several applications (especially off-grid solar and/or wind), energy efficiency can be of crucial importance. The round trip energy efficiency (discharge from 100% to 0% and back to 100% charged) of the average lead-acid battery is 80%.The round trip energy efficiency of a LFP battery is 92%.The charge process of lead-acid batteries becomes particularly inefficient when the 80% state of charge has been
reached, resulting in efficiencies of 50% or even less in solar systems where several days of reserve energy is required (battery operating in 70% to 100% charged state).In contrast, a LFP battery will still achieve 90% efficiency under shallow discharge conditions.

Size and weight

Saves up to 70% in space
Saves up to 70% in weight

Expensive?

LFP batteries are expensive when compared to lead-acid. But in demanding applications, the high initial cost will be more than compensated by longer service life, superior reliability and excellent efficiency.

Endless flexibility

LFP batteries are easier to charge than lead-acid batteries. The charge voltage may vary from 14V to 16V (as long as no cell is subjected to more than 4,2V), and they do not need to be fully charged.

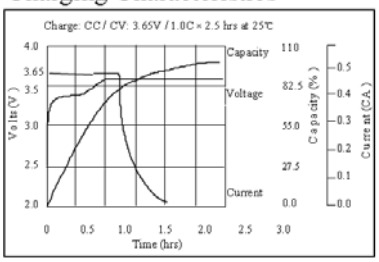
Several batteries can be connected in parallel and no damage will occur if some batteries are less charged than others.

Our 12V BMS will support up to 10 batteries in parallel (BTVs are simply daisy-chained).

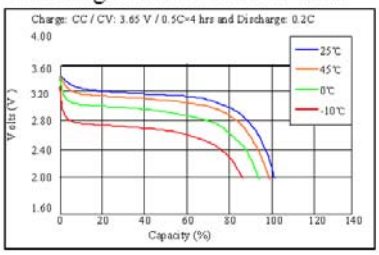
Specification	
Rated capacity	20Ah
Total Energy [Wh]	256Wh
Energy 90% DoD [Wh] (1)	230Wh
Energy 70% DoD [Wh] (1)	179Wh
Cell Chemistry	$LiFePO_4$
Nomial voltage	12.8v
Max continuous discharge current	7A
Charging mode	Constant current and voltage(CCCV)
Operating voltage range	10V to 14.6V
Over discharge protection volitage	10V
Charging current	7A
Over charge protection voltage	14.6V
Self Discharge	<3% Per Month(Battery Off)
Cycle life	>3500 times, capacity> nominal capacity*40%
Humidity, maximum	100%
Humidity, average	95%
Working temperature	Working: -20 to +65℃; Storage: 0 to +45℃
Warranty	5 years
Service Life (2)	15 years (5000 cycles) expected life at 70% DoD (1), 20 years (7000 cycles) at 50% DoD.
Protection, electronics	IP55
DC connection battery plus	Faston female 6.3mm

1. DoD = Depth of Discharge max allowable 90% DoD, recommended 70% average daily DoD for extended life, 50% DoD for optimal life.
2. End of Life (EoL) defined as battery dropping to 70% of Beginning of Life (BoL) capacity.

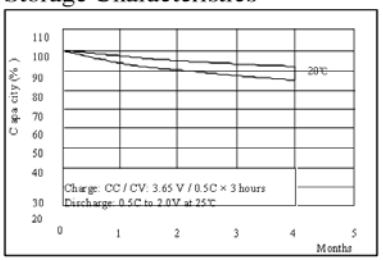
Charging Characteristics



Discharge Characteristics（II）



Storage Characteristics



A 12V BMS that protects the alternator (and wiring), and supplies up to 200A in any DC load (including inverters and inverter/chargers)
Alternator/battery charger input (Power Port AB)

1. The first function of Power Port AB is to prevent the load connected to the LFP battery from discharging the starter battery. This function is similar to that of a Cyrix Battery Combiner or Argo FET Battery Isolator. Current can flow to the LFP battery only if the input voltage (= voltage on the starter battery) exceeds 13V.
2. Current cannot flow back from the LFP battery to the starter battery, thus preventing eventual damage to the LFP battery due to excessive discharge.
3. Excessive input voltage and transients are regulated down to a safe level.
4. Charge current is reduced to a safe level in case of cell unbalance or over temperature.
5. The input current is electronically limited to approximately 80% of the AB fuse rating. A 50A fuse, for example, will therefore limit the input current to 40A.

   Choosing the right fuse will therefore:

   a) Protect the LFP battery against excessive charge current (important in case of a low capacity LFP battery).
   b) Protect the alternator against overload in case of a high capacity LFP battery bank (most 12V alternators will overheat and fail if running at maximum output during more than 15 minutes).
   c) Limit charge current in order not to exceed the current handling capability of the wiring.

Note:

SunMaster attempts to ensure the correctness of the product description and data contained herein. We reserve the right to change designs, specifications and pricing at any time without notice or obligation. It is the responsibility of the reader of this information to verify any and all information presented herein.

SDN Series

MPPT Solar charge controller with built in LED Driver

Overview

SUNMASTER **SDN** series MPPT solar charge controller combines solar charge controller and LED constant current driver into one unit. It has multiple load control modes which are ideal for various solar LED Lighting Applications, especially when a dimming function is needed. This series adopts the advanced MPPT (Maximum Power Point Tracking) charging methods which will result up to 30% charging efficiency increase compared with the PWM charge controllers.

Technical Parameters SDN60W

System Voltage:	DC12V (8V-18V)/DC24V(18V-32V)
Auto Self consumption:	Average static power consumption 6mA
MAX. Charging current:	10A
MAX. Power of PV Panel:	170WP（12V system）/360WP（24V system）
MAX. PV voltage:	DC55V
Output voltage:	15V~70V（12V system）/29V~70V（24V system）
Range of output current:	100mA~2400mA
Output current accuracy:	＜3%
MAX. Output power:	60W（12V system）/120W（24V system）
MAX. Conversion efficiency:	96%
Charging mode:	MPPT (Max. PV panel output current tracing)
Work mode:	Light/light+time/test/open/Dual time,3 period setting
Over Voltage protection	User Adjustable（Factory:12.6V）
Over Voltage Recover	User Adjustable（Factory:12.4V）
Over Discharge Voltage	User Adjustable（Factory:9.0V）
Over Discharge Recover Voltage	User Adjustable（Factory:10.0V）
Light on voltage	User Adjustable（Factory:5V）
Infrared human body sensor	User Adjustable（Factory: OFF, high level enable）
AUTO Energy conservation	User Adjustable（Factory: OFF）Canning
material :	Industry cast aluminum
Size:	70mm×82mm×21mm
Weight:	180
IP Class:	IP67