Instructions for Use Of SES Series Li-Battery Powered Intelligent Sensing Constant Current Solar LED Street Light Controller

Overview:

The SES series controller integrating the functions of lithium battery solar charge and discharge management, LED step-up constant current drive, intelligent sensing control and others is specially designed for integrated lithium battery powered LED street light. It delivers high reliability, high efficiency, high precision, ease of installation and maintenance and other benefits.

Features:

- Very low sleep current for long-distance transportation and storage.
- High accuracy and high efficiency PWM charge with constant voltage and limited current
- Multi-period programmable load power/time control
- Human infrared/microwave sensing function, with sensing delay time settable
- Lithium battery charge and discharge high and low temperature protection, with operating temperature settable
- A variety of lithium battery intelligent power modes, with load power adjustable automatically according to the battery level
- High precision digital step-up constant current control algorithm, ensuring high efficiency and high constant current accuracy
- Infrared wireless communication, allowing for setting/reading parameters, reading status, etc.
- Multiple protections such as battery/PV reverse polarity protection, LED short-circuit/open-circuit/limited power protection, etc.

Technical Parameters:

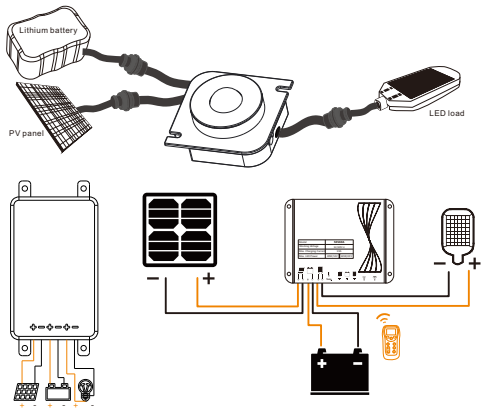
Items	Values			
Model	SES40-WB/SES40-IR	SES20-WB/SES20-IR	SES60-WB/SES60-IR	MES60-WB/MES60-IR
Sensing type	-WB microwave sensing; -IR infrared sensing			
System voltage	12V		12V/24V	12V
Zero load loss	< 10mA/12V		< 12mA/12V < 20mA/24V	< 15mA/12V
Sleep loss	< 0.5mA/12V	<5mA	<5mA	<5mA
Load current	50mA ~ 2000mA	50mA ~ 1400mA	50mA ~ 2000mA	50mA ~ 3300mA
Load voltage	15V ~ 45V	15V ~ 60V		15V ~ 40V
Maximum power of load	40W	20W	40W/12V 60W/24V	60W
Load conversion efficiency	90% ~ 96%			
Load current accuracy	< 3%			
Sensing delay (settable)	0s ~ 60min	0-250s		
Sensing range	IR: H:6-8m, L:6-10m; WB: H:8-10m, L:7-10m			
Maximum charge current	8A	6A	10A	8A-MPPT charge
Solar input voltage	≤ 25V		≤ 55V	≤ 40V
Charge voltage	12.5V (settable); ×2,24V system			
Charge return voltage	12.0V (settable); ×2,24V system			
Over discharge voltage	9.2V (settable); ×2,24V system			
Over discharge return voltage	10.2V (settable); ×2,24V system			
Light control voltage	3V ~ 11V	5V ~ 11V (settable)		
Light control delay	0s ~ 60min(settable)			
Operating temperature	-35℃ ~ +65℃ ;			
IP rating	IP67			
Weight	150g	120g	210g	210g
Controller dimensions (mm)	72.5*72.5*26.2	104×52×19.7	58×82×20	82×82×20
Controller installation size (mm)	58*54	95×35	43×75	66*75
Probe opening diameter (mm)	Φ52	IR-Φ36 WB-Φ45	Φ52	
Installation hole diameter (mm)	Φ3.5			

Indicators Description:

SES40- Red and blue indicators		
Color	**Status**	**Description**
Blue	Steady on	Load is turned on
	Single flash	Battery works properly, in standby mode
	Slow flash	In charging
	Double flash	Lithium battery is fully charged
	Quick flash	Lithium battery bms overcharge protection
Red	Slow flash	Load is open circuited/short circuited
	Quick flash	Battery over discharge

SES60/SES20/MES60-one red indicator		
Color	**Status**	**Description**
Red	Steady on	Battery works properly
	Off	Battery is not connected
	Slow flash	In charging
	Quick flash	System failure

Wiring and Panel Description:



Wiring sequence: Firstly connect the load, then the battery and finally the solar panel.
Note: In order to avoid short circuit between the leads, please connect one lead and wind with insulating tape before connecting the next one! ! !

Instructions for Use Of SN/DH Series All-in-One Constant Current Controller for Solar Street Light

Overview:

The SN/DH series waterproof all-in-one constant current controller integrates solar charge and discharge management, LED step-up constant current drive and other functions. It is widely used for solar street lights, solar garden lights, etc., providing high reliability, high efficiency, high precision, ease of installation and maintenance and other benefits.

Features:

- High accuracy and high efficiency PWM charge with constant voltage and limited current
- Multi-period programmable load power/time control
- Charge and discharge high and low temperature protection
- Load intelligent power mode, with load power adjustable automatically according to the battery level
- High precision digital step-up constant current control algorithm, ensuring high efficiency and high constant current accuracy
- Infrared wireless communication, allowing for setting/reading parameters, reading status, etc.
- Multiple protections such as battery/PV reverse polarity protection, LED short-circuit/open-circuit/limited power protection, etc.
- All-aluminum housing, with IP68 rating, allowing for use in a variety of harsh environments.
- External indicator, infrared sending and receiving device optional

Technical Parameters:

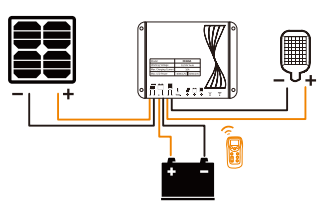
Items	Values				
Model	SN40	SN20	DH60A	DH100	DH120
System voltage	12V		12V/24V		
Zero load loss	< 10mA/12V		< 10mA/12V; < 12mA/24V;		
Load current	50mA ~ 2000mA	50mA ~ 1400mA	50mA ~ 2640mA	50mA ~ 3300mA	50mA ~ 3960mA
Load voltage	15V ~ 45V		12V system: 15V ~ 60V 24V system: 30V ~ 60V		
Maximum power of load	40W	20W	40W/12V;60W/24V	50W/12V;100W/24V	60W/12V;120W/24V
Load conversion efficiency	90% ~ 96%				
Load current accuracy	< 3%				
Maximum charge current	10A	6A	10A	15A	20A
Solar input voltage	≤ 25V		≤ 55V		
Step-up charge voltage/charge voltage	14.4V (lead acid battery); 12.5V (lithium battery) (settable)				
Charge return voltage/floating charge voltage	13.8V (lead-acid battery); 12.0V (lithium battery) (settable)				
Over discharge voltage	11.0V (lead-acid battery); 9.2V (lithium battery) (settable)				
Over discharge return voltage	12.6V (lead acid battery); 10.2V (lithium battery) (settable)				
Light control voltage	3V ~ 11V(settable)		5V ~ 11V(settable)		
Light control delay	0s ~ 59s/1min ~ 60min(settable)			1min ~ 60min(settable)	
Operating temperature	-35℃ ~ +65℃ ;				
IP rating	IP68				
Weight	150g		170g	280g	
Controller dimensions (mm)	58×82×17		58×82×20	100×82×20	
Controller installation size (mm)	43×75		43×75	86×75	
Installation hole diameter (mm)	Φ3.5				

Indicators Description:

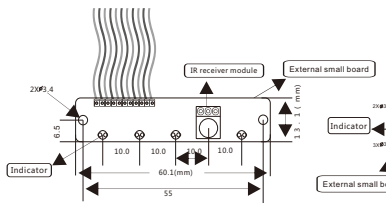
LED indicator	Indication content	Status	Function
	Charging indication	Steady on	Solar panel voltage is higher than light control voltage
		Off	Solar panel voltage is lower than light control voltage
		Slow Flash	In charging
		Quick Flash	System over-voltage
	Battery indication	Steady on	Battery works properly
		Off	Battery is not connected/ Lithium battery protection board enabled
		Quick Flash	Battery over-discharge
	Load indication	Steady on	Load is turned on
		Slow Flash	LED load is open circuited
		Quick Flash	LED load is short circuited
		Off	Load is turned off

T5 indicator plate- Red and blue indicators		
Color	**Status**	**Description**
Blue	Steady on	Load is turned on
	Single flash	Battery works properly, in standby mode
	Slow flash	In charging
	Quick flash	Lithium battery bms overcharge protection or Lithium battery full charge
Red	Slow flash	Load is open circuited/short circuited
	Quick flash	Battery over discharge

Wiring and Panel Description:



T5 small board size diagram



T2 small board size diagram

T1 small board size diagram

Wiring sequence: Firstly connect the load, then the battery and finally the solar panel.
Note: In order to avoid short circuit between the leads, please connect one lead and wind with insulating tape before connecting the next one! ! !

Instructions for Use Of DM Series All-in-one MPPT Constant Current Controller for Solar Street Light

Overview:

The DM series waterproof all-in-one MPPT constant current controller integrates MPPT solar charge management, LED step-up constant current drive and other functions. Ideal for lead-acid battery / lithium battery / colloidal battery, it is widely used for solar street lights, solar garden lights, etc., providing high reliability, high efficiency, high precision, ease of installation and maintenance and other benefits.

Features:

- MPPT technology, providing a tracking efficiency of up to 99.5% and a charge conversion efficiency of up to 96%
- Multi-period programmable load power/time control
- Charge and discharge high and low temperature protection
- Load intelligent power mode, with load power adjustable automatically according to the battery level
- High precision digital step-up constant current control algorithm, ensuring high efficiency and high constant current accuracy, conversion efficiency up to 96%
- Infrared wireless communication, allowing for setting/reading parameters, reading status, etc.
- Multiple protections such as battery/PV reverse polarity protection, LED short-circuit/open-circuit/limited power protection, etc.
- All-aluminum housing, with IP68 rating, allowing for use in a variety of harsh environments.
- Extensible IoT remote communication monitoring function (-U/-C series)

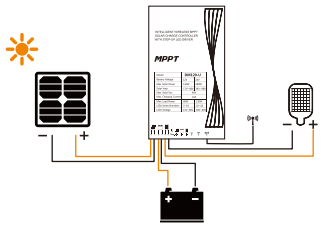
Technical Parameters:

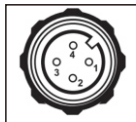
Items	Values		
Model	DM120	DM160	DM200
System voltage	12V/24V		
Zero load loss	< 25mA/12V; < 15mA/24V;		
Load current	50mA ~ 3960mA	50mA ~ 5280mA	50mA ~ 6600mA
Load voltage	12V system: 15V to 60V 24V system: 30V to 60V		
Maximum power of load	60W/12V;120W/24V	80W/12V;160W/24V	100W/12V;200W/24V
Charge and discharge conversion efficiency	90% ~ 96%		
Load current accuracy	< 3%		
MPPT tracking efficiency	> 99%		
Maximum charge current	10A	15A	20A
Maximum solar panel power	130W/12V;260W/24V	200W/12V;400W/24V	260W/12V;520W/24V
Solar input voltage	≤ 60V		≤ 95V
Step-up charge voltage/charge voltage	14.4V (lead acid battery); 12.5V (lithium battery) (settable)		
Floating charge voltage/charge return voltage	13.8V (lead-acid battery); 12.0V (lithium battery) (settable)		
Over discharge voltage	11.0V (lead-acid battery); 9.2V (lithium battery) (settable)		
Over discharge return voltage	12.6V (lead acid battery); 10.2V (lithium battery) (settable)		
Light control voltage	5V ~ 15V (settable)		
Light control delay	1min ~ 60min (settable)		
Operating temperature	-35℃ ~ +65℃ ;		
IP rating	IP68		
Weight	380g	480g	580g
Controller dimensions (mm)	114×88×25	142×88×25	153×114.4×34
Controller installation size (mm)	74×82	102×82	123*103
Installation hole diameter (mm)	Φ3.5		

Indicators Description:

LED indicator	Indication content	Status	Function
	Charging indication	Steady on	Solar panel voltage is higher than light control voltage
		Off	Solar panel voltage is lower than light control voltage
		Slow Flash	In charging
		Quick Flash	System over-voltage
	Battery indication	Steady on	Battery works properly
		Off	Battery is not connected/ Lithium battery protection board enabled
		Quick Flash	Battery over-discharge
	Load indication	Steady on	Load is turned on
		Slow Flash	LED load is open circuited
		Quick Flash	LED load is short circuited
		Off	Load is turned off

Wiring and Panel Description:





- Pin 1, Red : VCC
- Pin 2, Black : GND
- Pin 3, Yellow : A/T
- Pin 4, Green : B/R

1. Controller with an antenna interface has a built-in networking communication module;
2. Four-core waterproof connector for external RS485 communication interface;
3. Communication interface definition:

Wiring sequence: Firstly connect the load, then the battery and finally the solar panel.

Note: In order to avoid short circuit between the leads, please connect one lead and wind with insulating tape before connecting the next one! ! !

Instructions for Use Of SH Series Single String Lithium Battery Solar Street Light Controller

Overview:

The SH series controller integrates the function of single string lithium battery solar charge and discharge management. It is specially designed for single string lithium battery powered LED street light, presenting high reliability, high efficiency, high precision, ease of installation and maintenance and other benefits.

Features:

- High accuracy and high efficiency PWM charge with constant voltage and limited current
- Multi-period programmable load power/time control
- Charge and discharge high and low temperature protection
- Load intelligent power mode, with load power adjustable automatically according to the battery level
- High precision digital step-up constant current control algorithm, ensuring high efficiency and high constant current accuracy
- Infrared wireless communication, allowing for setting/reading parameters, reading status, etc.
- Multiple protections such as battery/PV reverse polarity protection, LED short-circuit/open-circuit/limited power protection, etc.
- All-aluminum housing, with IP68 rating, allowing for use in a variety of harsh environments.
- Infrared sensing function optional

Technical Parameters:

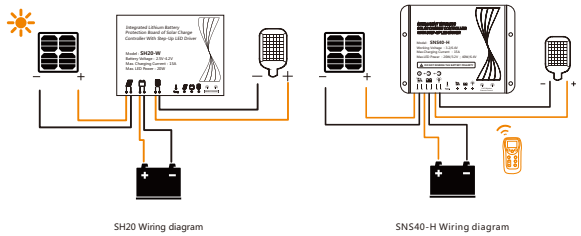
Items	Values			
Model	SH20	SNS30-P	SNS40-H	SNS60-H
System voltage	3.2V/3.7V	A single string,two strings of lithium iron or ternary lithium battery		
Load drive mode	Step-up constant current	PWM charge load pwm constant-current	PWM Charge load pwm load step-up constant-current	
Load current	150mA ~ 3300mA	150mA ~ 10A	50mA ~ 2500mA	50mA ~ 3000mA
Load voltage	≤20V	0 ~ battery voltage	5 ~ 25V	5 ~ 35V
Maximum power of load	20W	30W/3.2V 60W/6.4V	20W/3.2V 40W/6.4V	30W/3.2V 60W/6.4V
Load conversion efficiency	90% ~ 96%	90% ~ 98%	80% ~ 95%	
Load current accuracy	< 3%	< 5%	< 3%	
Maximum charge current	15A			30A
Solar input voltage	≤ 10V	Suggest :Single String :VMP=5V VOC=6V Two strings:VMP=10V VOC=12V , The max input voltage is 20V !		
Charge voltage	3.65V (lithium iron phosphate battery) 4.20V (ternary lithium battery)			
Charge return voltage	3.40V (lithium iron phosphate battery) 3.90V (ternary lithium battery)			
Over discharge voltage	2.50V (lithium iron phosphate battery) 3.00V (ternary lithium battery)			
Over discharge return voltage	3.00V (lithium iron phosphate battery) 3.30V (ternary lithium battery)			
Light control voltage	1V ~ 7V (settable)	1V ~ 7V		
Light control delay	5s ~ 60min(settable)	5s ~ 60s/2min ~ 60min		
Operating temperature	-35℃ ~ +65℃ ;			
IP rating	IP68	IP67		
Weight	180g	120g	150g	260g
Controller dimensions (mm)	104×60×23.5	43×82×17	58×82×17	80×82×23.5

Remark: SH20 controller allows for adjustment of parameters using a remote controller. SHI/SLI parameters are fixed in the factory and special parameters need to be customized.

Indicators Description:

LED indicator	Indication content	Status	Function
	Charging indication	Steady on	Solar panel voltage is higher than light control voltage
		Off	Solar panel voltage is lower than light control voltage
		Slow Flash	In charging
		Quick Flash	System over-voltage
	Battery indication	Steady on	Battery works properly
		Off	Battery is not connected/ Lithium battery protection board enabled
		Quick Flash	Battery over-discharge
	Load indication	Steady on	Load is turned on
		Slow Flash	LED load is open circuited
		Quick Flash	LED load is short circuited
		Off	Load is turned off

Wiring and Panel Description:



SH20 Wiring diagram

SNS40-H Wiring diagram

Wiring sequence: Firstly connect the load, then the battery and finally the solar panel.

Note: In order to avoid short circuit between the leads, please connect one lead and wind with insulating tape before connecting the next one! ! !

Code : 103618