SRNE 硕日

SR-EH系列 EH120Gen4
Instruction Manual for the Gen4 AC/DC Hybrid EH Series Controllers

产 品 特 点

- It has DC detection function. If there is DC supply, the power supply will automatically switch to DC mode when the battery voltage drops to the DC switching voltage point; otherwise, the battery will continue to discharge to the over-discharge point and then turn off the output.
- The switching voltage can be set.
- Lead-acid battery and lithium battery are interchangeable, and operation parameters can be set by remote control.
- Very low static current allows more energy saving, facilitating long-distance transportation and storage.
- Multi-stage constant voltage charging with temperature compensation is available for lead-acid batteries.
- 10-time period programmable load power/time control.
- The high and low temperature protection function is provided for battery charging and discharging, and the operating temperature can be set.
- Multiple intelligent power modes can be selected, and the load power can be automatically adjusted according to the battery level.
- High precision digital boost constant current control algorithm enables high efficiency and high constant current precision.
- Infrared/2.4G wireless communication is provided to set/read parameters, read [illegible] etc.
- Multiple protection functions such as battery/PV reverse-connection protection, load short circuit/open circuit/power limiting/overload protection are available.
- Expandable with sensing function (- ES series).
- All-aluminum metal housing at IP67 waterproof level makes the product applicable to various harsh environments.

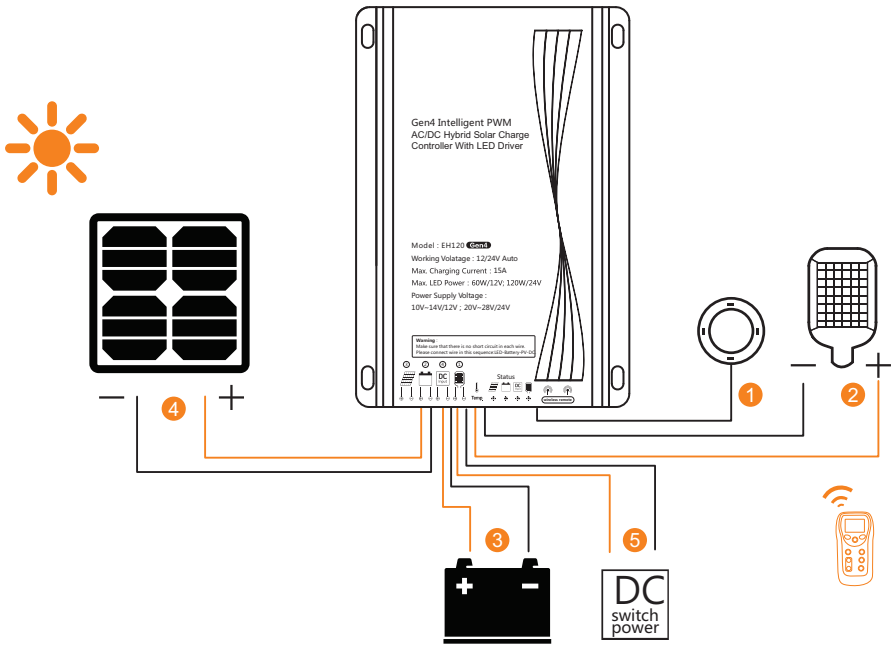
Indicator & remote control statuses

EH120/EL2415 controllers have four red indicators, with the indicator statuses as follows:

Indicator	Indicator status	Description of indicator	Remote control status
①PV indicator	Normally on	The panel voltage is greater than the light control voltage	Idle
	Off	The panel voltage is less than the light control voltage	Idle
	Double flashing	Full charge	Full charge
	Slow flashing	Charging	Charging
	Quick flashing	BMS protection or BAT overvoltage or PV overvoltage or over-temperature (ambient temperature) or limited power/current charging	E-BMS BV overvoltage PV overvoltage Over-temperature Overcurrent
②BAT indicator	Normally on	The battery works normally	Idle
	Off	Battery not connected or over-discharge protection from lithium battery protection board	
	Quick flashing	Battery over discharge	Over discharge
③DC indicator	Off	No DC connection	Discharging
	Slow flashing	DC connected but not switched to AC power	Idle
	Normally on	DC connected and load powered by DC	Open circuit
	Quick flashing	Abnormal DC voltage	Short circuit
④LOAD indicator	Normally on	Load started	Discharging
	Off	Load shutdown	Idle
	Slow flashing	Load open circuit	Open circuit
	Quick flashing	Load short circuit	Short circuit

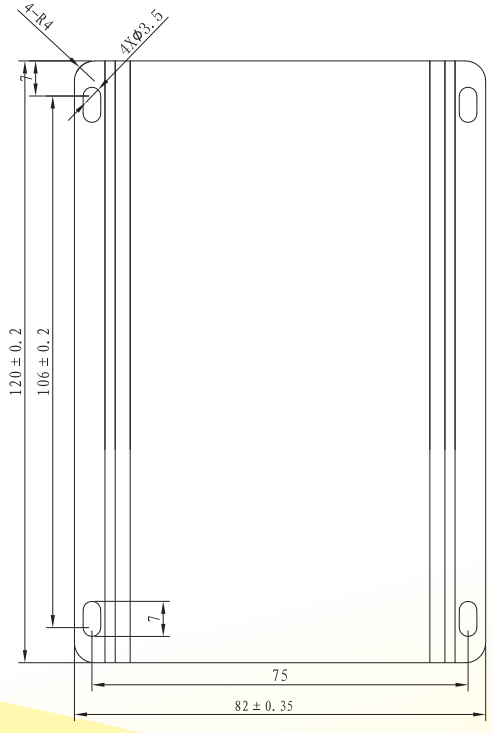
Electrical wiring diagrams

Wiring sequence: Connect the load first, then the battery and the solar cell, and finally the DC power according to the lead wire identification sequence of the controller.

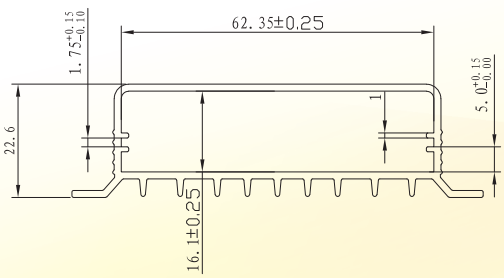


Connect the DC input end of the controller to the output end of 12V or 24V AC/DC switching power supply. Do not connect the 220V AC directly to the controller!

Dimensional drawing



Product dimensions: 82*120*23 mm
Mounting dimensions: 75*106mm
Mounting hole diameter: φ3.5mm



Technical parameters

Parameter name	Parameter value			Adjustable parameter	Default value
Model	EH120	EH120-ES	EL2415		
Controller type	-R: Infrared remote control; - W: 2.4 G wireless remote control		-R: Infrared remote control		
System voltage	12V/24V			√	Lead
Static power consumption	-R:<10mA/12V ; <15mA/24V -W:<35mA/12V ; <40mA/24V		-R:<10mA/12V ; <15mA/24V		
Load current	50mA ~ 4000mA		≤15A	√	330mA
Load voltage	15V ~ 60V/12V 30V ~ 60V/24V		≈Battery voltage or DC voltage		
Maximum load power	60W/12V ;120W/24V		180W/12V ;360W/24V		
Load conversion efficiency	90% ~ 96%		/		
load circuit voltage drop	/		≤450mV		
Load current accuracy	< 3%		/		
Intelligent power	High/Medium/Low/Auto/USE/No		/		
Load operating period	Nine periods + morning lighting				
Period adjustment range	1 min/10 min				
Power adjustment range	1%/10%				
Maximum charging current	15A				
Open-circuit voltage of solar panel	≤55V				
Overvoltage	Lead-acid battery: 16 V; lithium battery: charging voltage +2 V; ×2/24 V				
Equalizing charging voltage	Lead-acid battery: 14.6 V; lithium battery: no equalizing charging; ×2/24V				
Equalizing charging interval	30days				
Boost charging voltage (Lead-acid battery) Charging voltage (Lithium battery)	7.50V~17.00V can be set; ×2/24V			√	14.4V
Floating charging voltage (Lead-acidbattery) Charging reconnect voltage (Lithium battery)	7.50V~17.00V can be set; ×2/24V			√	13.8V
Over-discharge voltage	7.50V~17.00V can be set; ×2/24V			√	11.0V
Over-discharge reconnect voltage	7.50V~17.00V can be set; ×2/24V			√	12.6V
Switching voltage	7.50V~17.00V can be set; ×2/24V			√	11.5V
DC voltage input range	10~14V/12V system; 20~28V/24V system				
Light control voltage	3V ~ 11V			√	5V
Temperature compensation factor	Lead-acid battery: - 3.0 mV/°C/2 V; lithium battery: no temperature compensation				
Light control delay	5s ~ 60s/2min ~ 60min			√	10s
High-temperature operation	40°C ~ +90°C			√	65°C
Low-temperature charging	0°C ~ -35°C			√	-35°C
Operating temperature	-35°C ~ +65°C				
Protection level	IP67				
Protection function	Battery reverse connection protection, panel reverse connection protection,panel overvoltage protection, lithium battery over-charge & over-discharge protection, BMS over-charge detection protection for lithium battery, over-temperatureprotection, load open-circuit & short-circuit protection, load overcurrent protection, etc.				
Weight	300g				

Intelligent power

The controller can select the intelligent power mode according to the actual battery capacity, rainy days and other factors. The specific intelligent power modes include: High, Medium, Low, Auto, USE(Custom), No (Off).

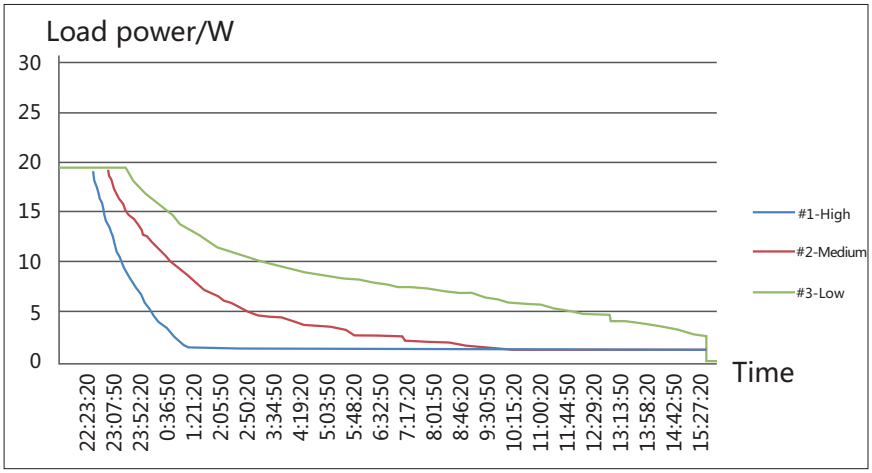
Intelligent power level:

High - The battery capacity at the starting point of power reduction is higher, and the load lighting time is the longest. This level is applicable to areas with more rainy days or poor sunlight;

Medium - The battery capacity at the starting point of power reduction is moderate, and the load lighting time is moderate. This level is applicable to the situations that need to consider both brightness and rainy days;

Low - The battery capacity at the starting point of power reduction is low, and the load lighting time is the shortest. This level is applicable to the situations requiring higher lighting effect;

Intelligent power curve



Intelligent power test data

Comparison of intelligent power consumption and rainy days		
Intelligent power level	**Power consumption per day**	**Continuous operating days**
No	100%	1
Low	50%	2
Medium	25%	4
High	15%	6

Test notes: 1. The test battery is fully charged, with consistent maximum load power and operating time.
2. Assume that the power consumption is 100% when the intelligent power mode is turned off.
3. The test results are obtained under a single condition (0 charge per day). The actual use conditions may be different from the test condition. Therefore, the test results are for reference only.