Smart Solar Light Controller

Photos

SCC-040-NB/SCC-060-NB/SCC-090-NB/SCC-120-NB
SCC-040-NBG/SCC-060-NBG/SCC-090-NBG/SCC-120-NBG

Product Features

- The MPPT maximum power real-time tracking technology is adopted, which has higher tracking efficiency and faster speed. The MPPT tracking efficiency can reach > 99.9%, and it always works in the best state of the photovoltaic panel.
- Real-time clock (astronomical clock and calendar functions, autonomous operation) 8-period programmable load power/time control.
- The load power can be automatically adjusted according to the battery quantity, and the lighting brightness can be adjusted remotely without a pole (0-100%)
- The built-in battery protection function always ensures that the battery works in a healthy state.
- High precision digital boost constant current control algorithm, high efficiency, and high constant current accuracy.
- Battery/PV reverse connection protection, LED short circuit/open circuit/power limit protection and other multiple protection functions.
- Extensible Internet of Things remote communication monitoring function, (Multi IoT method can be chosen: NBIOT).
- Open and secure API interface, access to network gateway, gateway OpenAPI and RS485 communication.
- All aluminum metal housing, IP67 waterproof rating, able to use in a variety of harsh environments.

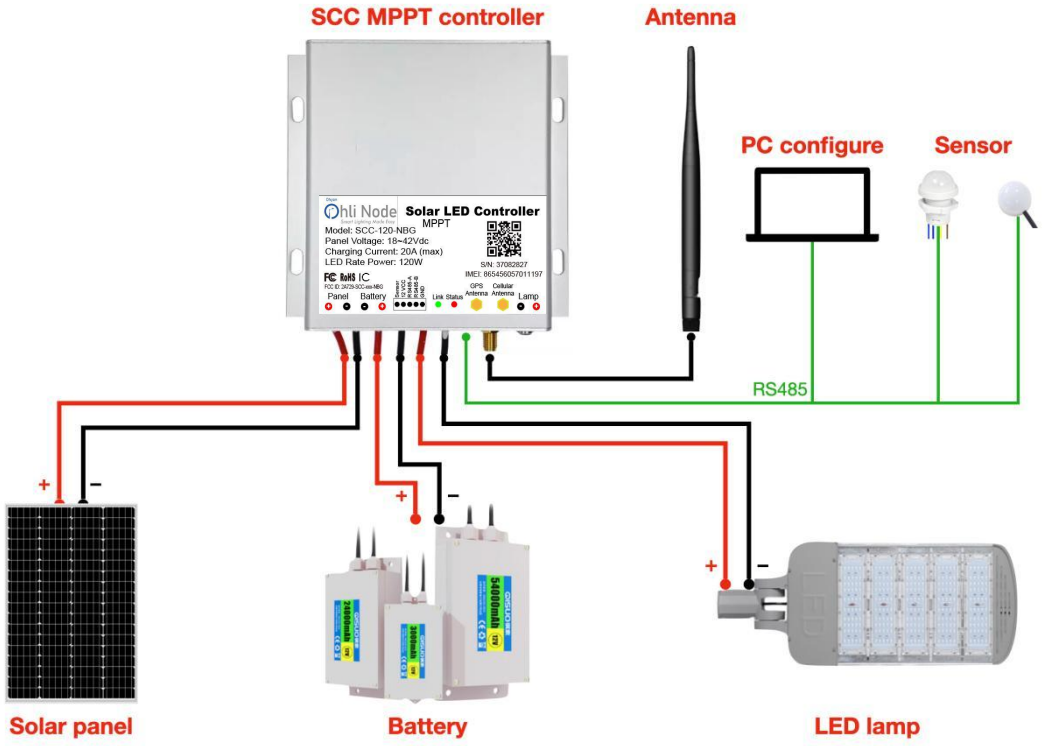
Product Selection table

Model	Description
SCC-040-NBG	IoT remote control, 40W output

SCC-060-NBG	IoT remote control, 60W output
SCC-090-NBG	IoT remote control, 90W output
SCC-120-NBG	IoT remote control, 120W output

Product wiring diagram

Wiring orders: Please connect the load first, then the battery, and finally the solar panel.

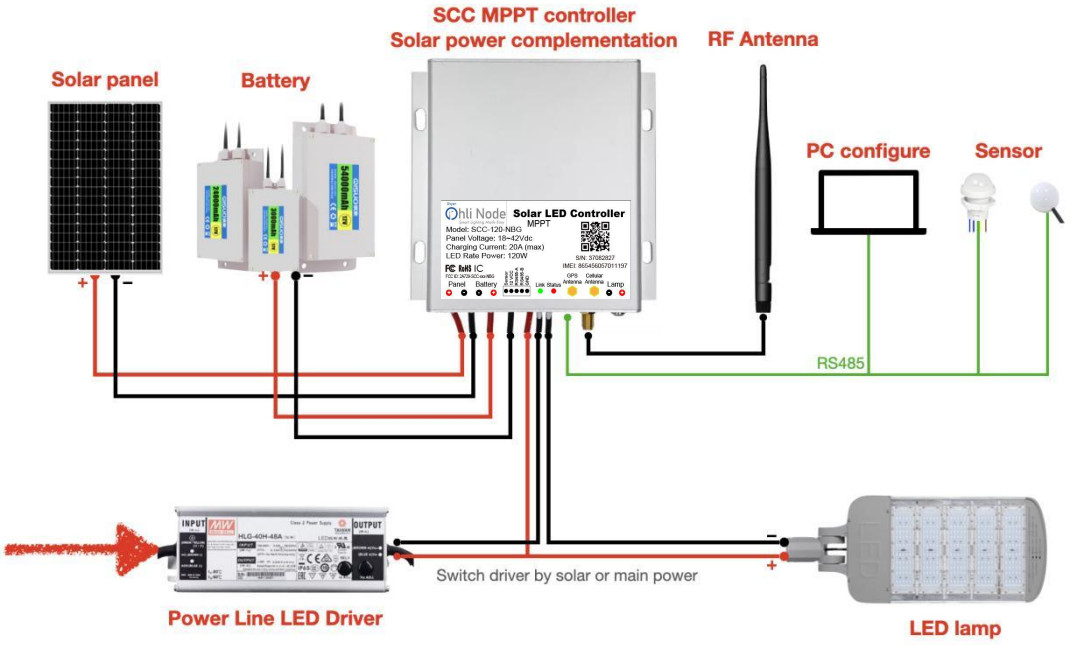


Product wiring diagram (Solar power complementation)

Wiring orders: Please connect the load first, then the battery, and the solar panel, then connect LED driver finally.

The following block diagram shows the special application scenario of the solar controller, which can be used complementary with the civil power grid and can be used normally even when the battery is short of power.

The solar controller has a built-in switcher, which is connected to the external LED drive power supply by default. When the battery capacity meets the LED lamp working, it will switch to the solar power supply mode.

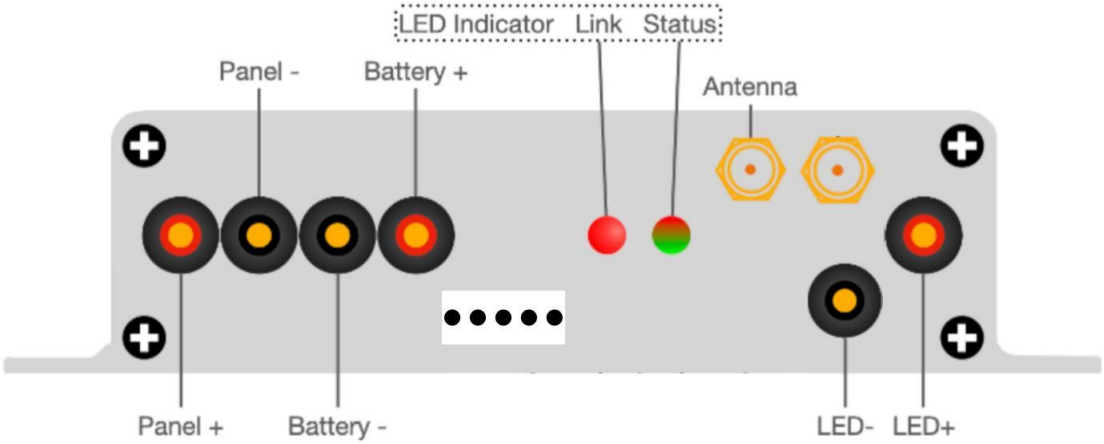


LED indicators

SCx reserve 1 Red LED and 1 Red/Green LED for user:

Indicator	State	Description
Red/Green LED Chareging indicate	RED light ON	Charging
	Green light ON	Discharging
	0.1 Sec ON, 0.1 Sec OFF	Error
	OFF	Idle
Red LED network indicate	1 Sec ON, 1 Sec OFF	Network connecting
	0.1 Sec ON, 0.1 Sec OFF	Network successfully

Interface descriptions



Front views

No.	Name	Description
1	Panel+	Connect the positive pole of the photovoltaic panel
2	Panel−	Connect the negative pole of the photovoltaic panel

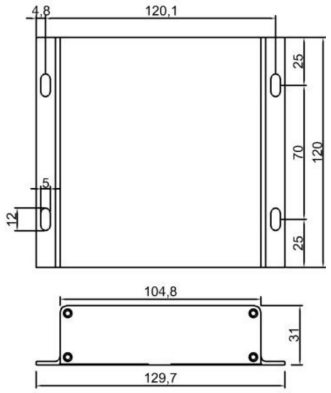
3	Battery+	Connect the positive pole of the battery package
4	Battery—	Connect the negative pole of the battery package
5	LED Indicator — Link	Indicate the communication status of controller
6	LED Indicator — Status	Indicate the working status of controller
7	Antenna	The communication antenna, SMA connector
8	LED+	Connect the positive pole of the LED lamp
9	LED—	Connect the negative pole of the LED lamp
10	Sensor In	External sensor digital signal input, TTL level, level signal can not exceed 5.5V
11	GND	Ground
12	+12Vdc	+12Vdc power output. Maximum power supply current 100mA
13	RS485—A	RS485 Interface
14	RS485—B	

Technical parameters

	Items	SCC-040-NBG	SCC-060-NBG	SCC-090-NBG	SCC-120-NBG	
Solar Panel	System voltage	12.8V/25.6V (Can be setup by API command)				
	Open circuit voltage	20Vdc ± 2Vdc for 12.8V System / 40Vdc ± 2Vdc for 25.6V system				
	Input power (Max.)	240W/36V(Max)	240W/36V(Max)	240W/36V(Max)	360W/36V(Max)	
	Charge current (Max.)	10A	10A	10A	15A	20A
	MPPT Tracking range	(Battery voltage + 1V) to (Panel voltage)				
	MPPT Tracking efficient	> 99%				
	Charging efficient	85%-98% (typical 97%)				
Battery parameters	Charging voltage	10～24.4V (25℃) for 12.8V system 20～28.8V (25℃) for 25.6V system				
	Over charge voltage	13.5V-15V for 12.8V system (default: 14.4V) 27V-30V for 25.6V system (default: 28.8V)				
	Over Charge return voltage	Over charge voltage – 0.2V				
	Over discharge voltage	10V-12V for 12.8V system (default: 11.6V) 20V-24V for 25.6V system (default: 23.3V)				
	Over discharge return voltage	Over discharge voltage + 0.2V				
	Over discharge recover voltage	Over discharge voltage + 2V				
	temperature compensation	None				
Load parameters	Load current	0 ~ 833mA	0 ~ 1250mA	0 ~ 1875mA	0 ~ 2500mA	
	Load voltage	30 ~ 48Vdc				
	Load max power	40W(Max)	60W(Max)	90W(Max)	120W(Max)	
	Load efficient	85 ~ 95% (Typical 93%)				
	Load regulation	≤30mA				
	Dimming Range	10% ~ 100%				
	Timer dimming	8-time segments				
	Timer segment range	0 ~ 255 min				

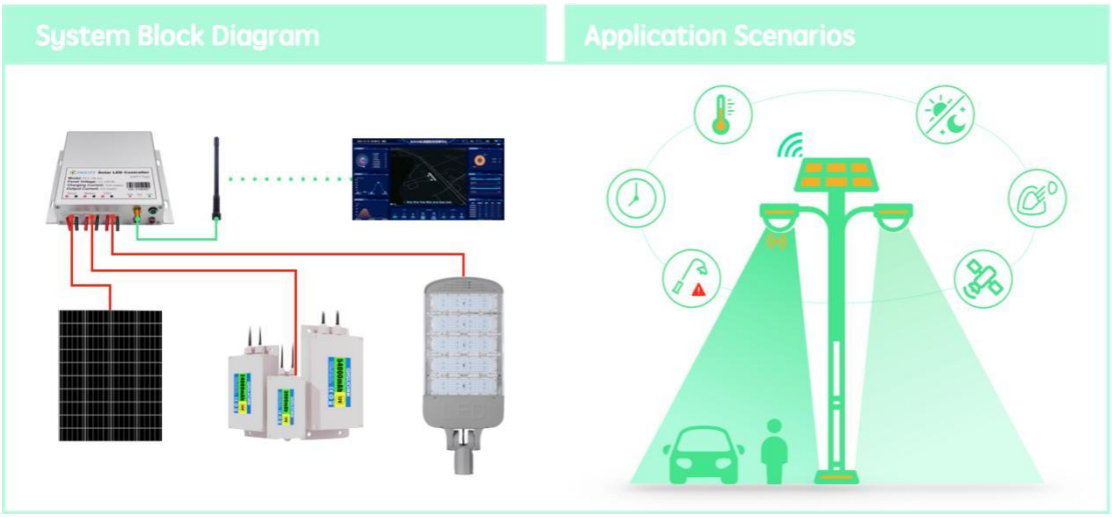
	Sensor detect feature	RS485 input or Digital input				
	Sensor detect delay control	Yes				
	Operate temperature	+30℃ ~ +60℃				
	Waterproof	IP67				
	Protections	Battery reverse connection protection, panel reverse connection protection, panel overvoltage protection, lithium battery overcharge and over discharge protection, lithium battery BMS overcharge detection protection, overtemperature protection, load open circuit short circuit protection, load overcurrent protection, etc.				
	Self-consumption	≤30mA for 12.8V system / ≤20mA for 25.6V system				
	dimension (mm)	75*129.7*31mm	90*129.7*31mm	90*129.7*31mm	120*129.7*31 mm	
	Install dimension (mm)	45*120.1 mm	45*120.1 mm	45*120.1 mm	70*120.1 mm	
	Weight(g) (Exclude antenna)	450g	550g	550g	700g	

Machine dimension



SCC-040-NBG/SCC-060-NBG/SCC-090-NBG/SCC-120-NBG

Application



RF exposure statement

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.
This equipment meets the exemption from the routine evaluation limits in section 2.5 of RSS—102. It should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

Cet équipement est conforme à l'exemption des limites d'évaluation habituelle de la section 2.5 de la norme RSS—102. Il doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et toute partie de votre corps.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC WARNING

This device contains licence—exempt transmitter(s) that comply with Innovation, Science and Economic Development Canada's licence—exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.