

# MPPT CHARGE CONTROLLERS



MPPT; Max Power Point Tracking is an efficient way of transferring power from the solar array to the energy storage system. As the amount of sunlight varies, the PV panel and battery's characteristics will change. An MPPT will optimise the charging profile from the PV array to the batteries, ensuring maximum power transfer can be achieved, this is called the Maximum Power Point. The MPPT uses this process to find the most efficient charging point for the system. MPPT solves the problem of choosing the best load to solar panel in order to get the most usable power.

- Features:**
- Advanced MPPT technology, with efficiency no less than 99.5%
  - Ultra-fast tracking speed and guaranteed tracking efficiency
  - Advanced MPPT control algorithm to minimize the maximum power point loss rate and loss time
  - Wide MPP operating voltage range
  - High quality components, perfecting system performance, with maximum conversion efficiency of 98%
  - Accurate recognition and tracking of multiple-peaks maximum power point
  - International famous brands of ST and IR's components of high quality and low failure rate are used, which can ensure the product's service life
  - Charging power and current limitation function
  - Compatible with lead-acid and lithium-ion batteries
  - Battery temperature compensation function
  - Real-time energy statistics function
  - Overheating power reduction function
  - Multiple load work modes
  - The communication port adopts professional protection chip, which can provide 5VDC power supply, and has over-current and short-circuit protection
  - With RS-485 communication bus interface and Modbus communication protocol, it is available to meet various communication requirements in different situations



Model	1210AN	2210AN	3210AN	4210AN
System nominal voltage	12/24 VDC Auto Select			
Rated charge current	10A	20A	30A	40A
Rated discharge current	10A	20A	30A	40A
Battery voltage range	8~32V			
Max. PV open circuit voltage	100V/92V			
MPP voltage range	(Battery voltage + 2V) ~72V			
Max. PV input power	130W (12V) 260W (24V)	260W (12V) 520W (24V)	390W (12V) 780W (24V)	520W (12V) 1040W (24V)
Self-consumption	≤12mA			
Discharge circuit voltage drop	<0.23V			
Temperature compensate co-efficient	-3mV/°C/2V (Default)			
Grounding	Common Negative			
RS485 interface	5VDC/100mA			
LCD backlight time	60S (Default)			
Working environment temperature	-25°C ~ +50°C (100% input and output)			
Storage temperature range	-20°C ~ +70°C			
Relative Humidity	<95% (N.C)			
Enclosure	IP30			
Dimension	172x139x44mm	220x154x52mm	228x164x55mm	252x180x63mm
Mounting dimension	130x130mm	170x145mm	170x164mm	210x171mm
Mounting hole size	φ5mm			
Terminal	12AWG(4mm²)	6AWG(16mm²)	6AWG(16 mm²)	6AWG(16 mm²)
Recommended cable	12AWG(4 mm²)	10AWG(6 mm²)	8AWG(10 mm²)	6AWG(16 mm²)
Weight	0.57kg	0.94kg	1.26kg	1.65kg

# PWM CHARGE CONTROLLERS



SEC UK offer a range of charge controllers (battery regulators) designed to limit the charge voltage and current to the energy storage systems or batteries. A PWM Charge Controller is an efficient solar charge controller that adopts the most advanced digital techniques. The multiple load control modes enable it to be widely used on solar home systems, traffic signals, solar street lights and solar garden lamps.

Pulse-width modulation PWM, or pulse-duration modulation, is a technique used to encode a message into a pulsing signal. The main advantage of PWM is that power required by the unit (the power load) is very low. When switched off there is practically no current being drawn, when it is switched on and power is being transferred from the PV array, there is almost no voltage drop across the PWM device.

PWM regulates the input voltage to the battery by using pulse width modulation to drop the output voltage of the PV Panel to a working 13.8 volts.

- Features:**
- Adopt high quality components of ST, IR and Infineon ensuring product lifespan
  - Terminals have UL and VDE Certification, the product is safer and reliable
  - 100% input and output in the environment temperature range
  - 3-stage intelligent PWM charging: Bulk, Boost/ Equalize and Float
  - Supports 3 charging options: Sealed, Gel, Flooded and User
  - RS485 communication interface and Modbus communication protocol
  - Battery temperature compensation function
  - Energy statistics function
  - Multiple load control modes
  - Extensive Electronic protection



Model	LS1024B	LS2024B	LS3024B
System nominal voltage	12/24 VDC Auto Select		
Battery Types	Sealed/Gel/Flooded/User		
Rated charge current	10A	20A	30A
Rated discharge current	10A	20A	30A
Working Voltage range of controller	8~32V		
Max. PV open circuit voltage	50V		
Self-consumption	$\leq 8.4\text{mA}/12\text{V}; \leq 7.8\text{mA}/24\text{V}$		
Charge circuit voltage drop	$< 0.28\text{V}$		
Discharge circuit voltage drop	$< 0.20\text{V}$		
Temperature compensate coefficient	$-3\text{mV}/^{\circ}\text{C}/2\text{V}$ (default)		
Working environmental temperature	$-35^{\circ}\text{C} \sim +50^{\circ}\text{C}$		
Relative humidity	$\leq 95\%$ (N.C.)		
Enclosure	IP30		
Grounding	Common Positive		
Dimension	138.6x69.3x37mm	159.6x81.4x47.8mm	200.6x101.3x57mm
Terminal	0.13kg	0.3kg	0.5kg