LINOVISION

Solar-CMP10A

10A MPPT Solar Charge Controller with RS485 Remote Control and Cloud Access

As a core part in solar power systems, solar charge controller regulates voltage & current from PV solar panels to batteries to ensure properly charging, and provide full protections when discharging and supplying DC power to load devices, like security cameras, lights, wireless transmission gateways, speakers, etc. MPPT (Maximum Power Point Tracker) controllers are far more efficient than traditional PVM controllers by optimizing voltages between PV panels and batteries, especialy in cloudy days. One big challenge is to remotely monitor the solar charge data and has the ability to configure some settings. Linovision MPPT solar charge controller supports RS485 Modbus communication. When bundled with Linovision IOT-C101 (RS485 to network converter) or IOT-R51W (4G LTE Cellular router with RS485 input), users can easily remotely view charging status and change settings via the Cloud (RemoteMonit.com)

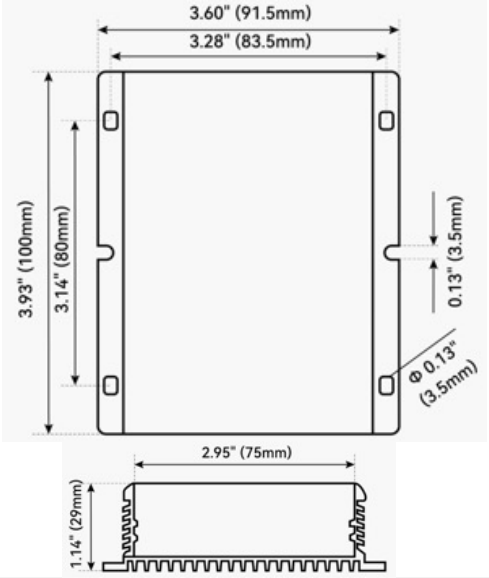
Outstanding Features

- MPPT (Maximum Power Point Tracker) charging technology with upto 99% tracking efficiency and 98% peak PV conversion efficiency, it is much better than traditional PVM controllers, especially in cloudy days
- Automatic 12v/24v detection for non-lithium batteries
- 10A output current, suitable for small off-grid systems, like solar powered camera system, Street light, Solar Powered Weather / IoT station, etc
- Compatible to popular batteries in the market, such as Lead Acid, Gel, AGM, Lithium, LiFePO4 Lithium, etc. (Default set to 4S LiFePO4 Lithium)
- 4 Stages safely charging, Trickle Charging Start -> Fast Charging -> Equavalization -> Floating for Gel and Lead Acid batteries, or Trickle Charging Start -> Fast Charging -> Constant Voltage Charging -> Pausing for Lithium batteries.
- Comes with 20Amp Fuse protection on the battery terminal
- Easy and secure cabling, MC4 for PV panels, XT60 for battery, and round 2pin for load devices
- Well designed protections, including over charging, over discharging, PV short circuit, PV current is too high, load failure, battery reverse polarity, etc.
- Suitable for outdoor use, Aluminum housing, IP67 waterproof rating, wide working temperature
- Compact design (100mm x 91.5mm x 29mm, or 3.74 x 3.6 x 1.14 inch)
- Support RS485 ModBus for remote monitor and control
- Can be managed in Linovision RemoteMonit cloud platform

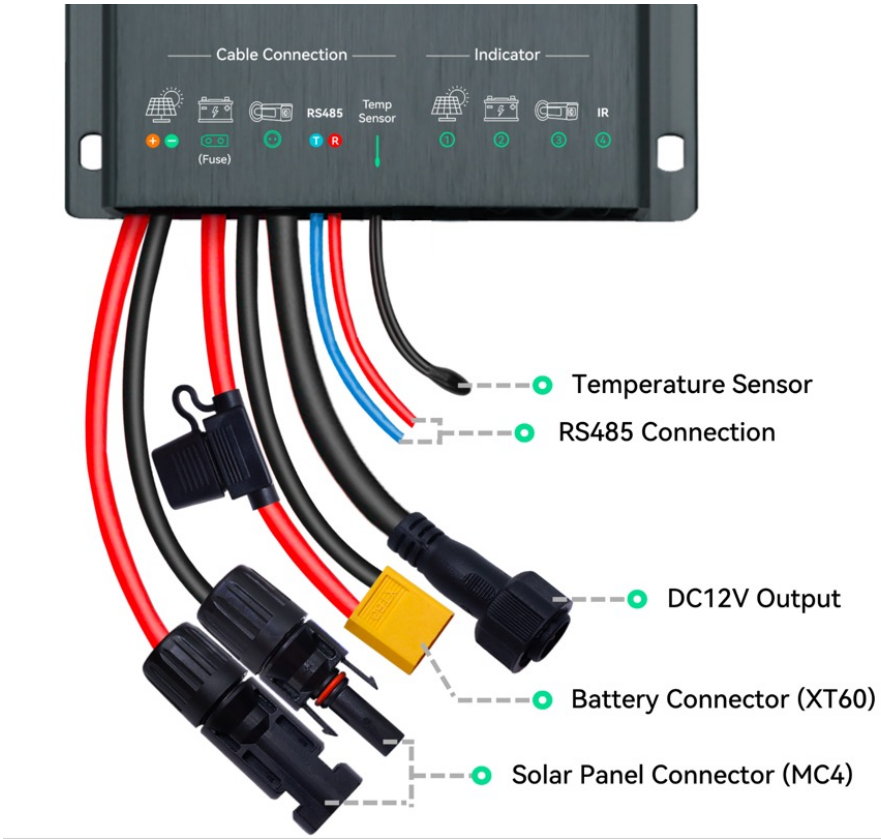
Specification

Parameter		Specification
Charging	Charge mode	MPPT(Maximum Power Point Tracking)
	Battery Type	Lead Acid, Gel, AGM, Lithium, LiFePO4 Lithium, etc. *(Default set to 4S LiFePO4 Lithium, voltage 11.2V ~ 14.4V)*
	Fuse protection	20A Fuse
	Max PV open Circuit Voltage	60v
	Current	10A
Discharging	Discharge mode	Manually, Day/Nigith Auto Switch, Schedule
	Load type	12/24v auto
	Output Voltage	Battery Voltage
	Output Current	10A
Remote Management	RS485 output	YES
	Cloud Management	YES (Comes with 1 year free subscription of Linovision RemoteMonit.com cloud, also supports 3rd party cloud integration)
General	Typical Efficiency	>98%
	Self-consumption	≤14mA
	Dimension	100 x 91.5 x 29mm, or 3.94 x 3.6 x 1.14 inch
	Waterproof Grade	IP67
	Net weight	1.12 lbs or 510g
	Work temperature	-40℃ ~+55℃ or -40°F to 131°F

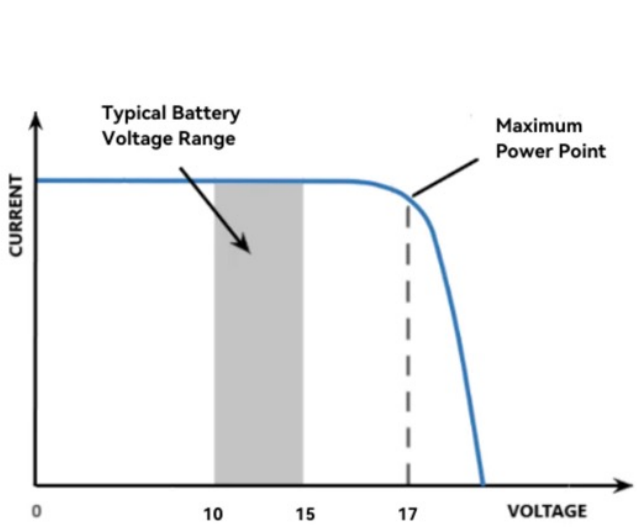
Dimension



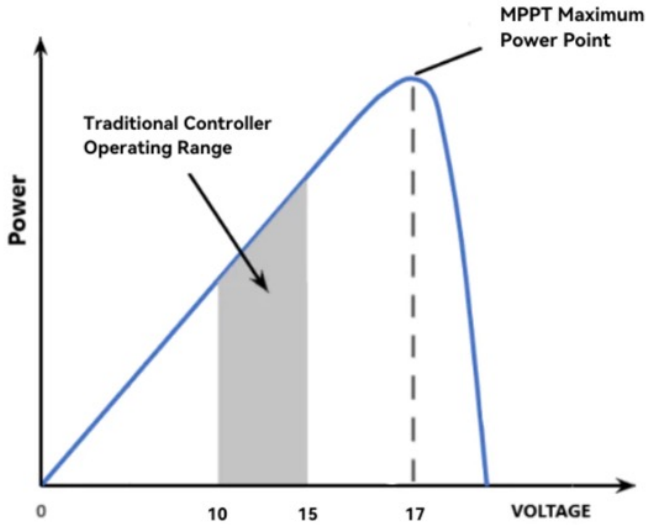
Interface



MPPT Charging Advantages



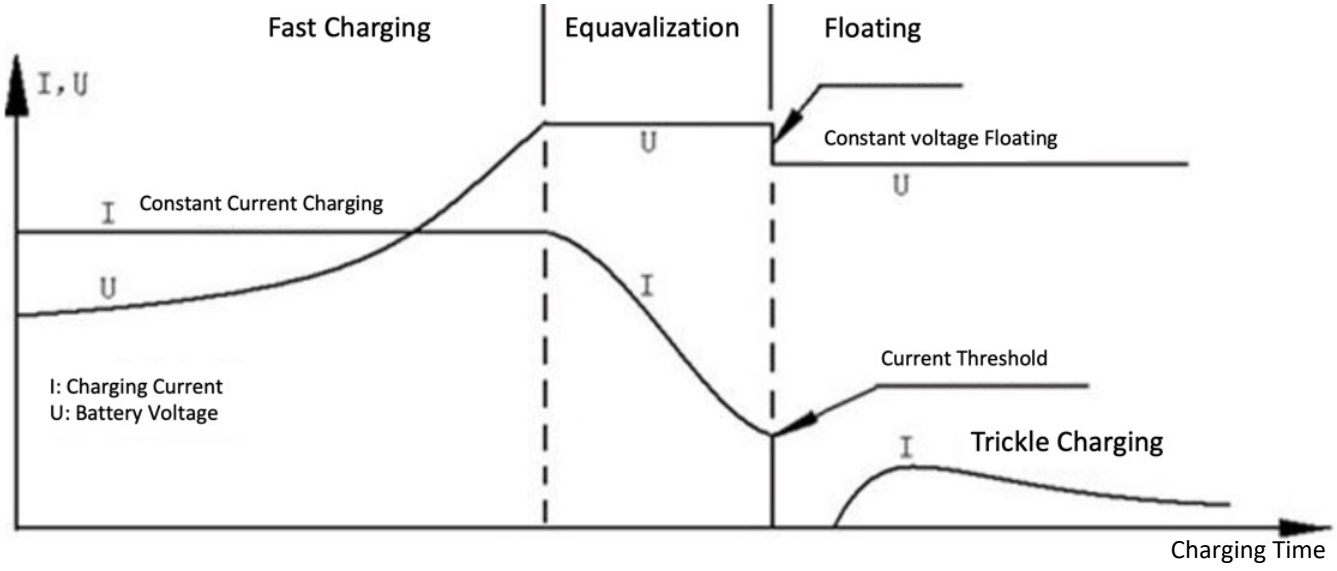
Current / Voltage in 12V system



Power / Voltage in 12V system

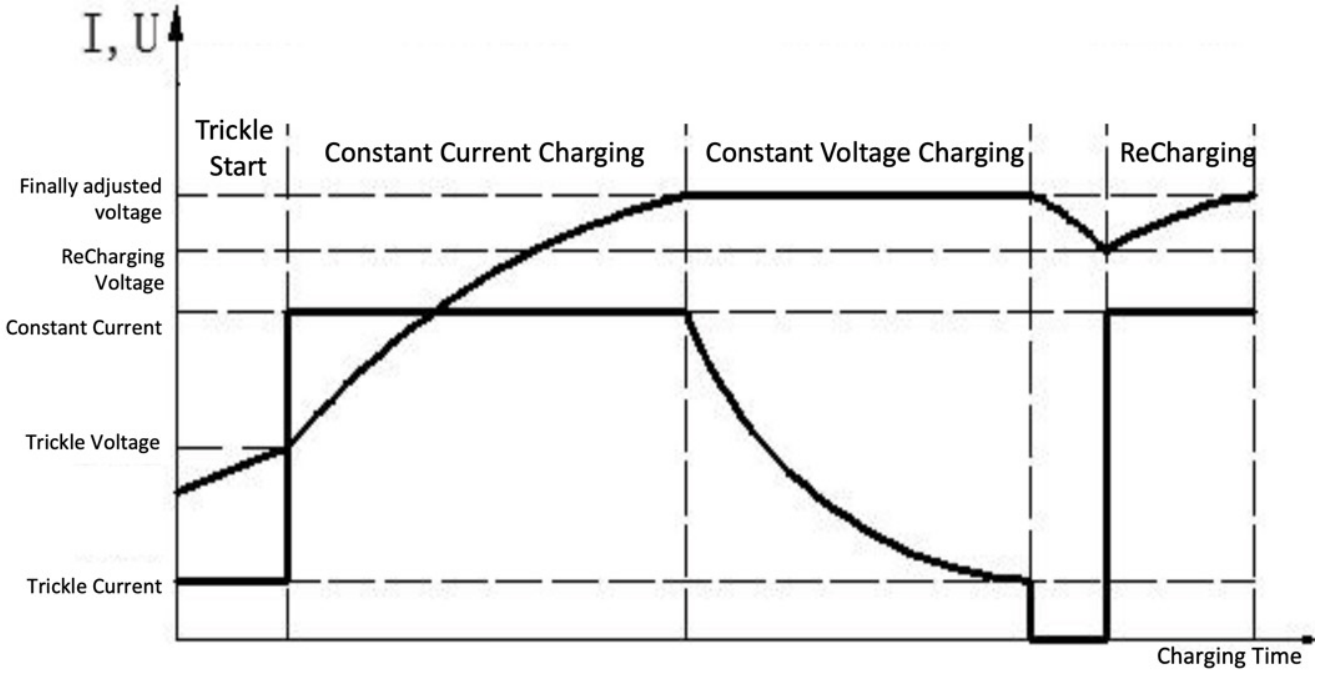
4 Stage Charging for Gel or Lead Acid batteries

- **Trickle Charging** – starting with small current to protect battery
- **Fast Charging** – maximize charging efficiency and limit PV panel votage to battery voltage
- **Equavalization** – constant voltage charging to prevent over charging
- **Floating** – charging with small current to maintain battery capacity



4 Stage Charging for Lithium batteries

- **Trickle Charging** – starting with small current to protect battery
- **Fast Charging** – maximize charging efficiency and limit PV panel votage to battery voltage
- **Constant Voltage Charging** – constant voltage charging to prevent over charging
- **Pausing** – stop charging when charging current is low enough (around 0.02C to 0.07C)



Discharging Modes

- **Manually Turn ON/OFF**– via IR remote (Purchased separately) or from Linovsiion RemoteMonit Cloud
- **Day/Night Auto Switch**– By monitoring the PV input voltage, the controller knows if it is day or night and then turn ON or off the output automatically and set delay.
- **Schedule ON/OFF** – Users can set up to 6 schedules per day to control the discharge status
- **Test Mode**– Similar to Day/Light Switch but without delay settings

By default the controller is in 24hr ON Schedule mode

Protections

The system is well designed to protect battery and load devices.

Protection		Description
	PV Short Circuit	If the PV array input of a short circuit , the controller will disconnect the associated circuitry; When the short circuit condition clears , the charge will automatically recovery
	PV Current is too high	The controller will automatically cut off the PV input
	Load Failure	Detet if there is short circuit o open circuit failure when a load device is connected, prompt with LED Flashing. And if the failure is over 7 minutes, the controller will only try the 2nd day.
	Over Charge Protection	If the charging voltage is too high, the controller will automatically cut off the charging circuit to protect battery.
	Over Discharge Protection	When the battery voltage is too low, the controller will cut off the load output, and will restore output when the battery voltage is up.
	Battery Polarity Protection	There is protection for battery reverse polarity connection. It continue to work after the correction.
	Temperature Sensor Failure Protection	If the temperature sensor is out of work, the controller set default temperature at 25 ℃ or 77 ℉.

Connection Instructions

1. To start using this solar controller, please connect load devices (such as security cameras, LED light) first before connecting to battery.

2. The solar controller is pre-programed with these settings.

- Battery type: LiFePO4 4S Lithium battery
- Load output: 24hr continuous output
- Baud rate: 9600 (2023 version is 2400)
- RS485 address: 11 (2023 version is 1)

Recommended bundles for remote management

IOT-C101
Industrial Serial Device Server to Convert RS232 and RS485 Modbus to Ethernet
Purchase Link.

IOT-R51W
Industrial 4G LTE Cellular Router with Virtual SIM and RS485 ModBus
Purchase Link.

Linovision RemoteMonit CLOUD

All customers purchased Linovision Solar-CMP10A and IOT-C101/IOT-R51W bundle will have 1 year free subscription of Linovision RemoteMonit.com CLOUD.