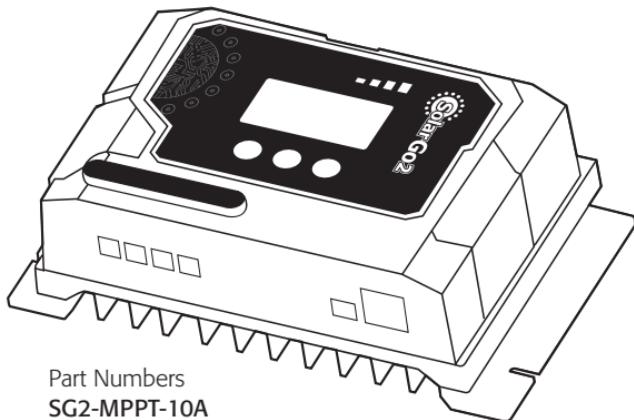




## User Manual

# MPPT Solar Charger Controller



### Part Numbers

SG2-MPPT-10A

SG2-MPPT-20A

SG2-MPPT-30A

DC 12V/24V Controller  
Current Rating: 10A/20A/30A

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### **Important:**

Please read before first use and follow these instructions carefully.

## HEADS UP – SAFETY FIRST!

Before you connect or switch on your Solar Controller, please take a moment to run through these safety tips.

We know it's tempting to jump straight in, but this part is important – and could save you from a nasty surprise later!

- This charger is for indoor use only, so make sure it stays dry and out of damp areas.
- Leave repairs to the pros. If something seems off, get a qualified technician to take a look or contact us.
- Batteries like Lead Acid, Gell, LCO, LiFePO4, and LTO are powerful – and can be dangerous. Keep flames, sparks, and smoking materials well away.
- Protect your eyes – always wear safety glasses when working near batteries.
- Solar panels do their job really well... sometimes a little too well! They start generating power as soon as there's light, even if they're not plugged in. Handle with care.
- A small spark from shorted wires or terminals can cause injury or fire. Cover your solar panels with a cloth during setup to block light and reduce risk.
- Install a battery fuse on each circuit, including the solar controller. It's a smart move for peace of mind.
- Double-check your wiring! Don't reverse the connections between the solar panel and battery.

## MOUNTING AND INSTALLATION

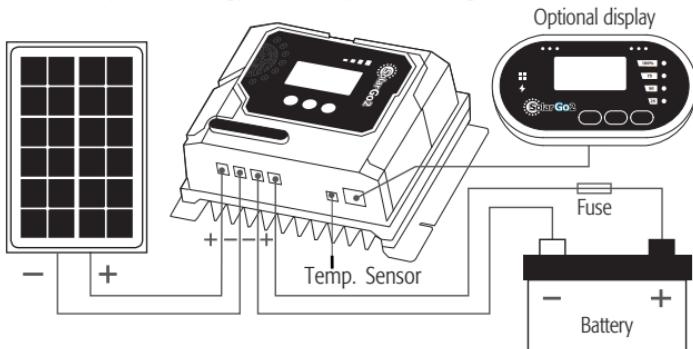
To get the best out of your Solar Controller, here's how to mount it safely and effectively.

- Pick a spot that's out of the way but still easy to see – especially if you're fitting it inside a caravan.
- Please allow 5cm around the controller to help with the passive cooling of the controller.
- Mount the unit on a vertical wall. This helps with cable placement and allows the controller to stay cool during operation.
- Try to mount the controller close to the battery. This keeps the cable short, which helps improve efficiency and safety. And don't forget – a fuse is essential on this wire. It's a simple step that adds protection to your setup.
- It's designed for indoor use only, so make sure it's protected from rain, damp, and the elements.

## WIRING CONNECTIONS

To get the best out of your Solar Controller, here's how to mount it safely and effectively.

- To protect both your battery and solar panel, we strongly recommend adding an inline fuse on the positive wire of each circuit:
  - Use a 15A fuse for a 10A controller.
  - Use a 30A fuse for a 20A controller.
  - Use a 40A fuse for a 30A controller.
  - Place the fuse as close as possible to the battery for optimal safety.
- Before connecting any cables, make sure to cover the solar panel to block incoming light. And you have disconnected the battery! This helps prevent accidental sparks or energy flow while you're working.



- When it comes to wiring, stranded **copper wire** is your best bet. Check out the wire size charts below to find the right thickness for each connection – this will make sure your solar controller performs at its best.

**Unit: Meter**

Rated current	The cable total length one-way distance	Solar panel -> Controller -> Battery		
		< 3m	3-6m	6-9m
Rated current	The cable total length one-way distance	Solar panel -> Controller -> Battery (metre)		
		< 3m	3-6m	6-9m
10-20/30Amp	The cable size (AWG)	12/10AWG	10/8AWG	8/6AWG

**Unit: Feet**

Rated current	The cable total length one-way distance	Solar panel -> Controller -> Battery		
		< 10ft	10-20ft	20-30ft
Rated current	The cable total length one-way distance	Solar panel -> Controller -> Battery (feet)		
		< 10ft	10-20ft	20-30ft
10-20/30Amp	The cable size (AWG)	12/10AWG	10/8AWG	8/6AWG

## CABLE CONNECTIONS AND SETUP

With the controller mounted close to the battery, you're nearly there. Just follow these easy steps to get your wiring safely and securely in place:

1. Be sure to connect the solar panel and battery to the correct terminals – reversing them can cause serious damage.
2. If possible crimp the cable ends coming from the solar panel.
3. Do the same for your battery wires.
4. Remove the rubber cover on the top end of the controller (see image below). You'll see four screws beneath.
5. Loosen the screws, insert the Solar (input) and Battery (output) cables, then tighten them down securely to make a solid connection. Making note of the polarity of the connections are correct!
6. Finally, replace the rubber cover to keep things neat and protected – follow the example shown in the picture.
7. Once the connections are completed, the Solar Controller will start working automatically.



**Please do not reverse the connections with the solar panel and battery when installed the cables.**

## OPERATING – LCD DISPLAY

When the controller powers up, it does a quick self-check to make sure everything's good to go before it starts charging. You'll see the following messages cycle through on the screen:

8888	<b>Self-test begins.</b> This checks all the segments on the digital display
r001	<b>Software version.</b> So you know what's running under the hood
12U 30A	<b>Battery voltage and current check.</b> Making sure your system is balanced

## SYSTEM SETUP

You've got two easy ways to configure your SolarGo2 controller – whether you prefer tapping buttons or using your phone:

### Option 1 – Wireless setup

Use the **Smart Life** app to adjust settings remotely via your phone's Bluetooth.

- It's fast, intuitive, and gives you full access to system parameters, battery profiles, and performance data.
- Read the below **wireless setup guide**.

### Option 2 – Manual setup via controller buttons

*Prefer hands-on control?*

- You can configure all key settings directly from the controller using the **PV/+**, **BATT/-**, and **SET UP** buttons.
- Read below the step-by-step manual instructions.

### Option 1 – Wireless setup with Smart Life

Your SolarGo2 controller is ready. Now let's bring it to life with the Smart Life app.

#### Download the Smart Life app

Choose your route to get started:

- Scan the QR code (on your device or [here](#)) → for instant download (iOS and Android).
- Or search 'Smart Life' in the App Store or Google Play Store.



#### Pairing your device

First-time setup? Pair your controller with your phone:

1. Enable **Bluetooth** and **location services** on your phone.
2. Power on your solar controller.
3. Tap the **+** icon on the app home screen (top right) → **Add device**.
4. Select your controller when it appears.

#### Pairing with a new phone?

**Please note:** Only 1 phone can be paired up to the controller at any one time.

- Turn off Bluetooth on the old phone that was connected.
- Then either:
  - Delete the device from the Smart Life app.
  - Or hold **PV + BATT** buttons for **10 seconds** until the Bluetooth icon flashes.

## Navigating the Smart Life app

App settings from the app homepage:

- Tap the **Me** icon (bottom right).
- Then tap **Settings** (top right corner) to:
  - Change app language
  - Manage alarms and notifications
  - Check for firmware updates.

## Real-Time Tab

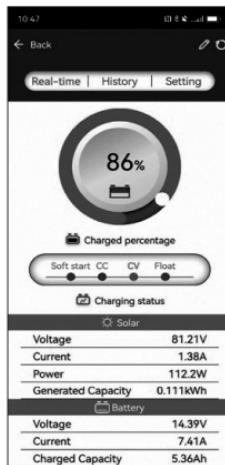
Get a live snapshot of your solar system:

**Battery charge % + charging stage:**

- Soft-Start (0–25%): gentle boost for low batteries.
- CC (25–50%): steady bulk charging.
- CV (50–75%): tapering top-up.
- Float (75–100%): maintains full charge.

**Charging status shows:**

- Voltage/Current/Power from your solar panels.
- Generated capacity since sunrise.



## History Tab

Track your energy journey:

- **Total power generated.**
- **Total charge delivered.**
- Swipe through graph views: 7 days / 30 days / 12 months.
- Toggle graphs with generated power or Amp hours for deeper insight.

## Settings Tab

Fine-tune your charging preferences:

- **Battery type:** Choose from presets or create a custom template.
- **System voltage:** 12V/24V/Auto.
- **Max charge current:** Set upper charging limits.
- **Equalisation (on/off):** Boost flooded lead acid battery health.
- **Absorption voltage:** Define target voltage for CV stage.

## Want to start fresh?

- Tap Factory data reset to clear history and restore defaults.

## Message centre

Stay ahead of system alerts:

- Tap **Me** → **Message Centre** for app alerts.
- Smart Life also sends push notifications to your phone's status bar.

## OPTION 2 – Manual setup

### System battery voltage setting

To set your desired system battery voltage, just follow these simple steps:

1. Press and hold the **SET UP** button for 3 seconds → This will open the battery voltage setting mode.
2. Choose your voltage → Use **PV/+** or **BATT/-** buttons to select from:
  - 12V
  - 24V
  - AUTO (automatic detection)
3. Confirm your selection → Press the **SET UP** button again to lock in your choice.



### Auto memory and voltage detection

Once you've set your system battery voltage, the controller takes care of the rest:

- If you selected **AUTO**, the controller will detect whether a 12V or 24V battery is connected and adjust accordingly.

No need to reconfigure every time – just plug in and let the system do the thinking.

### Supported battery types

You have 8+1 options to choose from on the LCD:

Display name	Battery type description
LCO	Lithium Cobalt Oxide (LiCoO <sub>2</sub> ) – recommended only for 3-series set-ups
LTO	Lithium Titanate Oxide (Li <sub>4</sub> Ti <sub>5</sub> O <sub>12</sub> )
LFP	LiFePO <sub>4</sub> (Lithium Iron Phosphate)
Crystal	Lead Crystal
Gel	Gel cell battery
AGM	Absorbent Glass Mat – <b>default setting</b>
WET	Conventional lead-acid
Calcium	Lead-acid with calcium composition
Custom	Tailored setting based on user input

## How to set battery type

While inside the manual setup mode follow these steps to select the correct battery setting:

1. Press the **SET UP** button → Enters battery type selection mode.
2. Navigate your options
  - Use **PV/+** or **BATT/-** to cycle through the battery types
  - The currently selected type will flash on the display and show the charging voltage.
3. Confirm the selection → Press **SET UP** again to lock in your battery type.

The controller will automatically remember your last selection to save time next time around.

**Important note:** Incorrect battery type selection could harm your battery. Always check your manufacturer's recommendations before changing settings. The diagram shows different battery voltage for the different battery types.



## Custom battery profile setting (expert settings)

For users with unique battery requirements, the controller offers a **CUSTOM** mode that puts you in control of key charging parameters:

### What you can set:

- Absorption Voltage and duration.
- Equalization voltage, duration and cycle frequency.
- Float voltage level.
- Reset voltage level.

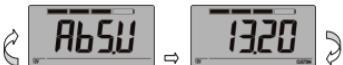
This flexibility ensures optimal performance tailored to your battery's specific needs.

### What you'll see on the LCD:

When entering **CUSTOM** mode, the screen will display:

- **AbS.U** → indicating Absorption Voltage is being configured.
- The relevant voltage data flashes to guide your adjustments.

**A quick reminder:** Make sure to double-check your battery specifications before fine-tuning these values. Incorrect settings can reduce battery life or cause damage. We can not be held responsible for any damage caused to your battery if these settings are changed.



## Adjustment range

- From 12.20V to 15.50V.
- Use **PV/+** or **BATT/-** buttons to make precise tweaks:
  - Each press adjusts the voltage by  $\pm 0.05V$ .

## To confirm your setting

- Once you've reached your desired voltage, press the **SET UP** button again
  - This locks in your Absorption Voltage
  - You'll then move automatically to the Absorption Duration setting.



## Absorption duration setting

In CUSTOM mode, after setting the Absorption Voltage, you'll adjust how long the controller maintains that voltage before switching charging phases.

## Display indicators

- LCD shows AbS.T → indicating Absorption Time.
- Duration value appears next to it and updates as you make changes.

## Setting duration

- Adjustable range: 5 to 500 minutes.
- Use **PV/+** or **BATT/-** buttons for fine-tuning: → Each press adjusts by  $\pm 5$  minutes.

## Confirm and continue

Press **SET UP** again to confirm your chosen duration

The controller will automatically move to the Equalisation Voltage Setting.



## Equalisation voltage setting

In CUSTOM mode, after completing the Absorption Duration setup, the controller guides you to configure the Equalization Voltage.

## LCD display

- The screen will show EqL.U to indicate Equalization Voltage
- Real-time voltage data flashes beside it for easy tracking

## Adjustment range and controls

- Voltage range: 13.30V to 16.20V.
- Use:
  - **PV/+** to increase
  - **BATT/-** to decrease
  - Each press adjusts the voltage by  $\pm 0.05V$ .

## Confirm and advance

- Press the **SET UP** button again to save your setting.
- You'll then proceed automatically to the Equalisation Duration setup.



## Equalisation duration setting

Once the Equalisation Voltage has been set, the controller moves on to configuring how long it will maintain that voltage.

### LCD display

- Shows EqL.T → indicating Equalisation Time.
- Duration data appears and updates as you make changes.

### Setting the duration

- Range: 5 to 500 minutes.
- Use **PV/+** or **BATT/-** buttons to adjust:  
→ Each press changes the value by ±5 minutes.

### Confirm your choice

- Press the **SET UP** button again to save your duration.
- The system will automatically advance to the Equalisation Periodical Cycle setup.



## Equalisation periodical cycle setting

This step lets you control how often the controller runs equalization – a key process for maintaining battery health in certain types.

### LCD display

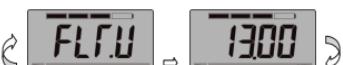
- Shows EqL.P → short for Equalisation Period.
- The display cycles through day-count options so you can set your desired interval.

### Cycle settings

- Range: 0 to 100 days.
- Use: → **PV/+** to increase → **BATT/-** to decrease:  
→ Each press adjusts the cycle by ±1 day.
- A setting of 0 means equalisation is disabled.

### Confirm and continue

- Press **SET UP** again to save your cycle setting.
- The system automatically advances to the Float Voltage Setting.



## Float voltage setting

In CUSTOM mode, after setting the Equalization cycle, the controller shifts to configuring the Float Voltage – this helps keep your battery safely topped off without overcharging.

### What you'll see

- LCD shows FLT.U → indicating Float Voltage.
- Voltage value appears and updates as you make changes.

### Adjustment range and controls

- Set anywhere from 11.50V to 14.00V.
- Use PV/+ or BATT/- to adjust by  $\pm 0.05V$  per press.

### Confirm and move on

- Press the **SET UP** button again to lock in your Float Voltage setting
- The controller will then guide you to the Reset/Restart Voltage configuration



## Reset/restart voltage setting

After confirming the Float Voltage, the controller moves to setting the Reset/Restart Voltage – this defines when the system resumes charging after reaching Float.

### What you'll see

- LCD displays rST.U.
- Voltage value appears underneath.

### Adjustment range and controls

- Set between 11.00V to 13.50V.
- Use PV/+ or BATT/- to adjust in  $\pm 0.05V$  steps.

### Confirm and save

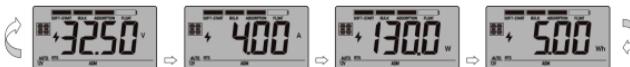
- Press the **SET UP** button again to confirm your Reset/Restart Voltage.
- The controller automatically saves all settings and exits setup mode.

## Solar input parameter display

Once all settings are confirmed, the solar controller enters charging mode automatically. The LCD then begins showing real-time solar input data to keep users informed.

## How to view parameters

- Press the **PV/+** button repeatedly to cycle through:
  - Solar Input Voltage
  - Solar Input Current
  - Solar Input Power (W)
  - Total Energy (kWh)



## Battery monitoring display

To check on your battery's real-time status, press the **BATT/-** button repeatedly – this scrolls through key data points shown on the LCD.

### Display sequence

- Battery Voltage
- Charging Current
- Charged Capacity (Ah)
- Battery Temperature (only if an external temp sensor is connected)



## Temperature unit conversion

For systems equipped with an external temperature sensor (optional accessory), users can view battery temperature in their preferred unit.

### How to switch units

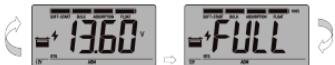
- Press the **SET UP** button to toggle between:
  - Degrees Centigrade (°C).
  - Degrees Fahrenheit (°F).



## Full charge indicator

When the battery reaches full charge, the LCD display will automatically show:

- The Battery Voltage.
- The character **FUL** – indicating that the battery is fully charged.



## Battery charge indicator bar

In addition to numerical data, the controller provides a visual battery status bar on the LCD screen – perfect for a quick health check.

## What the bar shows

- Charge levels at 25%, 50%, 75%, and 100%.



## Charging stages (non-Lithium)

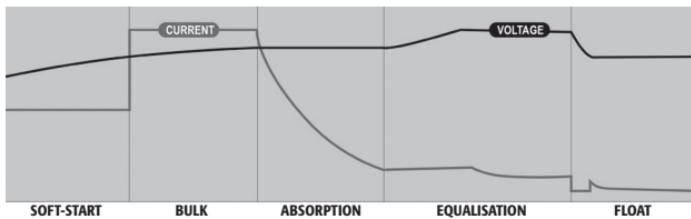
This solar controller uses a smart multi-stage charging algorithm to ensure optimal performance and battery lifespan. It automatically adjusts charging behaviour based on battery condition and type.

### Supported batteries

- Crystal
- Gel
- AGM
- WET
- Calcium

### Charging stages

Soft-start, Bulk Charge, Absorption Charge, Equalizing Charge, Float Charge.



## Charging stages (Lithium batteries)

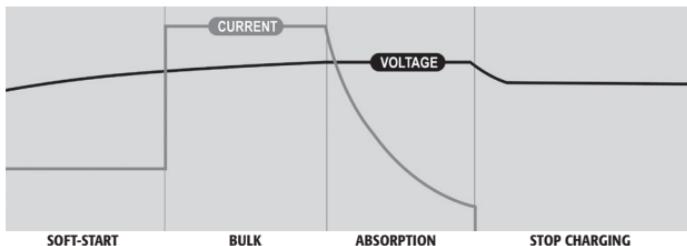
For Lithium-based batteries (LCO, LFP, LTO), this controller uses a specialized multi-stage algorithm tailored to their unique chemistry and charging behaviour:

### Supported batteries

- LCO – Lithium Cobalt Oxide.
- LFP – Lithium Iron Phosphate (LiFePO<sub>4</sub>).
- LTO – Lithium Titanate Oxide (Li<sub>4</sub>Ti<sub>5</sub>O<sub>12</sub>).

### Charging stages

Soft Charge, Bulk Charge, Absorption Charge, Stop and Restart.



## Charging stages overview – All battery types

The controller intelligently manages different battery chemistries using multi-stage charging. Below is a breakdown tailored for Lead Acid and Lithium batteries:

### 1. Soft start

- Activates when batteries are deeply discharged.
- Gently ramps voltage up to 10V, protecting sensitive cells.

### 2. Bulk charge

- Delivers maximum current until Absorption level is reached.
- Lead Crystal batteries:
- Two-step bulk charging.
- First stage up to 14.4V, then second stage at 5 % of initial current until 14.7V.

### 3. Absorption

- Holds constant voltage while current tapers.
- Ensures battery reaches 85%+ charge for Lead Acid types.
- Lithium (LCO, LFP, LTO) batteries stop here – fully charged.

### 4. Equalisation

- Only for WET or Calcium Lead Acid batteries.
- Initiates automatically if voltage drops below 11.5V
- Balances internal cells and restores lost capacity.
- **Not applicable for Crystal, GEL, AGM, or Lithium batteries.**

### 5. Float or restart

- Maintains full charge at safe voltage.

#### **Lead acid:**

- Float voltage >13.6V.
- If voltage drops to 12.7V, returns to Bulk Charge.

#### **Lithium:**

- No float mode.
- Restarts Bulk Charge if voltage falls below:
  - 12.0V (LCO)
  - 13.0V (LTO)
  - 13.3V (LFP)

### Override function

- For severely discharged batteries (0V).
- Works for:
  - Lead Acid (Crystal, GEL, AGM, WET, Calcium).
  - Lithium (LiFePO<sub>4</sub>) with BMS protection.

### How to activate:

- Press **BATT/-** button for 3 seconds to wake up the battery.

## LED indications

### Normal charge

LED indications						
LED colour	green	blue	white	white	white	white
Soft-start	on	flash	flash	off	off	off
Bulk charge	on	on	on	flash	off	off
Absorption / Equalisation	on	on	on	on	flash	off
Float charge	on	off	on	on	on	on

### Abnormal charge

Solar panel abnormal mode	LCD display	LED indicator	LCD backlight
Solar panel weak <15V		flash    on	on
Solar panel reverse connection		flash    on    on    on	flash
Solar panel over voltage (30A >95V,10A/20A >72V )		flash    on    on    on	flash

Battery abnormal mode	LCD display	LED indicator	LCD backlight
Solar panel is connected, battery disconnected		flash    on    on    on	flash
Battery reverse connection		flash    on    on    on	flash
Battery over voltage than >17V		flash    on    on    on    on	flash
Battery temperature over 65°C		flash    on    on    on    on	flash
The controller over temperature protection		flash    on    on    on	flash

## SAFETY PROTECTIONS

This controller is equipped with essential safety mechanisms to protect your system and extend battery life:

- **Reverse polarity protection**

Guards against incorrect solar or battery connections.

- **Nighttime reverse current block**

Prevents battery current from flowing back to the solar panel at night.

- **Over-temperature regulation**

Automatically reduces charging current to avoid overheating.

- **Transient overvoltage protection**

Shields against sudden surge voltages caused by lightning or unstable grid conditions.

## ROUTINE MAINTENANCE

To ensure optimal performance and longevity of your controller:

- **Clean the case**

- Use a soft, damp cloth and a mild cleaning agent.
- Avoid harsh solvents or excessive moisture.

- **Inspect terminal connections**

- Check for loose, corroded, or rusty terminals.
- Tighten or clean as necessary using appropriate tools.

- **Check cables**

- Look for any damage, wear, or fraying.
- Replace cables only by a qualified technician to ensure safety.

## SPECIFICATIONS

1	Electrical parameters	100	Max.	VDC
1-1	Maximum PV open circuit voltage for 30 Amp unit at -20°C	100	Max.	VDC
1-2	Maximum PV open circuit voltage for 10 Amp and 20 Amp units at -20°C	75	Max.	VDC
1-3	Normal input PV voltage for 30 Amp unit at 25°C	92	Max.	VDC
1-4	Normal input PV voltage for 10 Amp and 20 Amp units at 25°C	70	Max.	VDC

1-5	Max. PV input current: 10 Amp/20 Amp/30 Amp units	10/20/30	Max.	AMP
1-6	Max. PV short circuit current:	15/25/35	Max.	AMP
1-7	Rated charging current	10/20/30	Max.	AMP
1-8	Conversion efficiency	98	Max.	%
1-9	Tracking efficiency	99.5	Min	%
1-10	Nominal PV power: 10A 20A 30A	150@12V/ 300@24V 300@12V/ 600@24V 440@12V/ 880@24V		Watt
1-11	Self-consumption from battery when PV is disconnected	18	+/-0.5	mA
1-12	Output open circuit voltage when battery is disconnected	0.5	Max.	VDC
1-13	MPP voltage range for 30 Amp unit	15-72	+/-0.5	VDC
1-14	MPP voltage range for 10 Amp and 20 Amp units	15-54	+/-0.5	VDC
<b>2</b>	<b>Charging characteristics</b>			
2-1	Minimum battery start charging voltage	5	Min	VDC
2-2	Soft start charging voltage	5-10	+/-0.2	VDC
2-3	Soft-start charging current 10 Amp/20 Amp/30 Amp units	5/10/15		AMP
2-4	Bulk charge 10 Amp/20 Amp/30 Amp units	10/20/30	Max.	AMP
2-5	Absorption charging voltage at 25°C --LCO battery --LTO battery --LFP battery --Gel type battery --AGM type battery (default setting) --WET type battery --Lead Crystal battery --Calcium battery --Custom setting range	12.6 14.0 14.2 14.1 14.4 14.7 14.7 14.9 12.0-15.5	+/-0.2 +/-0.2 +/-0.2 +/-0.2 +/-0.2 +/-0.2 +/-0.2 +/-0.2 +/-0.2	VDC
2-6	Absorption transits to Equalising or Float/Stop condition --Charging current drops to 10 Amp/20 Amp/30 Amp units -- or Absorption charging timer timed out for Lead acid battery -- or Absorption charging timer timed out for Lithium battery (CV1+CV2)	0.5/1.0/1.5 4 4	+/-0.1 Hour Hour	AMP

2-7	Equalisation charging activation			
	--Only for WET or Calcium battery			
	--Battery voltage discharged less than	11.5	+/-0.2	VDC
2-8	Equalization charging voltage at 25°C	15.5	+/-0.2	VDC
2-9	Equalisation charging timer timed out	2		Hour
2-10	Equalisation charging voltage for CUSTOM setting	13.3-16.2	+/-0.2	VDC
2-11	Float voltage (for Crystal, GEL, WET, AGM and Calcium battery) at 25°C	13.6	+/-0.2	VDC
	Custom	11.5-14.0	+/-0.2	VDC
2-12	Restart voltage			
	-- for Crystal, GEL, WET, AGM and Calcium battery	12.7	+/-0.2	VDC
	-- for LCO battery	12.0	+/-0.2	VDC
	-- LTO battery	13.0	+/-0.2	VDC
	-- LFP battery	13.3	+/-0.2	VDC
	-- for CUSTOM setting range	12.5-13.5	+/-0.2	VDC
2-13	Voltage control accuracy	+/- 1%		
2-14	Battery temperature compensation coefficient	-24		mV/°C
2-15	Temperature compensation range	-20~+50		°C
<b>3</b>	<b>Electrical parts</b>			
3-1	Input output terminal	Rated connector - 57A		
<b>4</b>	<b>Physical parameters</b>			
4-1	Controller material	Plastic, PC		
4-2	Mounting	Surface mounting		
4-3	IP grade	IP43		
4-4	Dimensions: 10A 20A 30A	180 x 108 x 58mm // 0.7KG 180 x 108 X 58mm // 0.7KG 180 x 140 x 73mm // 0.9KG		
4-5	Wireless	Connects to most types of Bluetooth phones		
4-6	Remote display	Optional		
4-7	Temperature sensor	Optional		
<b>5</b>	<b>Environmental characteristics</b>			
5-1	Operating temperature	-25 ~ 50°C / -13 ~ 122°F		
5-2	Storage temperature	-40 ~ 85°C / -40 ~ 185°F		
5-3	Operating humidity range	0-85% RH		

**Please note** - Battery voltage settings for 12V mode, x2 for 24V mode.

## FEATURES & ADVANTAGES

This MPPT solar charge controller combines precision technology with user-focused design:

### **Technical capabilities**

- Wireless communication with most Bluetooth phones.
- Advanced MPPT Algorithm: Maximizes solar harvest – >99.5% tracking efficiency.
- Multiple Peaks Detection: Ensures optimal power from variable conditions.
- Wide MPPT Operating Voltage Range: Adaptable to diverse PV setups.
- Common Negative Grounding: Simplifies system integration.

### **Battery compatibility**

- Supports up to 8 battery types (preset), plus custom configurations.
- Automatic system voltage detection (12V / 24V).
- Smart protection against overcharging, undercharging, short circuit, reverse polarity, and overheating.

### **User interface and display**

- Intuitive LED bar shows solar and battery status.
- Large digital display with real-time data:
  - Solar & battery parameters.
  - Battery type and temperature.
  - Custom presets and fault codes.

### **Optional add-ons**

- Plug-in remote digital screen.
- External battery temperature sensor.

### **Build quality and standards**

- Splash proof (IP43).
- Rubber terminal masks for added protection.
- Conformal-coated PCB for durability.
  - Compliant with: UL1741, EN/IEC 62109-1.
  - EMI: EN61000-6-1/EN61000-6-3.
  - FCC: 47 CFR Part 15, Subpart B.



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