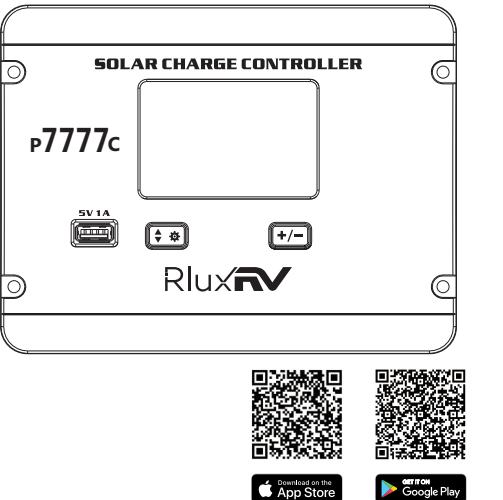


Solar Charge Controller

p7777c

User Manual



* We may modify these specifications without prior notice.

Warnings and Tools Icon Chart

Icons	Name	Description
⚠️	High Voltage	High voltage device. Installation should be performed by an electrician.
⚠️	High Temperature	This device will produce heat. Mount device away from other items.
⚠️	Environmental Hazard	Electronic Equipment. Do not put in landfill.
pliers	Wire Cutter	A wire cutter is needed for cutting and stripping prior wires to connect.
multimeter	Multi-meter	A multi-meter is needed for testing equipment and verifying polarity of cables.
glove	Anti-static Glove	Anti-static gloves are recommended to prevent controller damage caused by static electricity.
tape	Electrical Tape	Electrical tape is recommended to safely insulate spliced or bare wires.
screwdriver	Screwdriver	A common size screwdriver is needed to attach wires to the controller.

Product Features

Thank you for choosing our product. This device is a PWM 12/24V 30A charge controller ideal for many applications. Its flush mount design makes it perfect for solar power systems in RVs and boats. Please be sure to read through the following pages and familiarize yourself with the features and settings of the controller.

These charge controllers have these features:

- PCBA common negative design, necessary for all negative grounded solar power systems.
- 12/24V auto recognition for Flooded, AGM and GEL batteries. Lithium battery must be manually set.
- PWM 3-phase charging: equalize - boost- float (for Flooded, AGM and GEL).
- Flush mount design for easy installation, RV fixture or similar installation.
- Back light LCD display with informative pages (system status, current, voltage, voltage value settings, etc).
- 5V USB port for mobile device load. (plug and play)
- Multiple built in protections including solar reverse connection, battery reverse connection, and battery over-discharge protection.

INSTALLATION NOTES

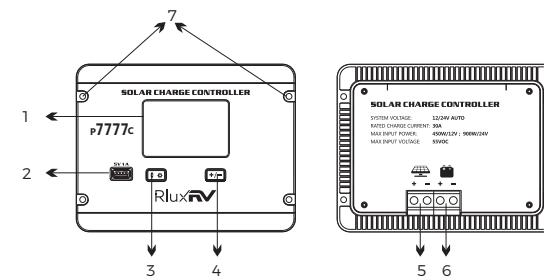
1) IMPORTANT REMINDERS

- The battery must always be connected to the controller first.
- Please note that the max PV input voltage is 55V open circuit voltage (Voc), so do not use solar module(s) with working voltage (Vmp) of more than 40V (refer to solar (PV) module specs).
- Please note the max PV input power is 450W/12V or 900W/24V. Please do not exceed the rated power.
- Do not change any settings in the "Li" battery mode if you are not using a lithium battery.
- In the Li battery mode, you must set the battery system voltage (12 or 24V) manually.
- If you would like to check the information in the "Li" battery mode settings, but not alter any settings, then you MUST remember to keep the right system voltage set (12 or 24V) before exiting from the settings.

2) HARDWARE SUGGESTIONS

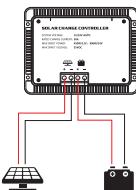
- For maximum PWM charge efficiency, we suggest using solar modules with an output of 18V (Vmp) for a 12V battery system, and 36V (Vmp) module for 24V battery systems. You can still use modules with higher voltages but it may lead to a slightly lower charge efficiency. In all cases the solar (PV) input voltage (Vmp) must be higher than the battery voltage.
- For safety and protection we suggest using a DC breaker or fuse between both the solar and the controller, as well as between the controller and the battery.

Device Diagram



#	Description	#	Description
1	LCD Display Screen	5	Solar Terminals
2	5V 1A USB Port	6	Battery Terminals
3	Function Key	7	Installation Mounting Holes
4	Parameter Key		

Wire Connection Sequences

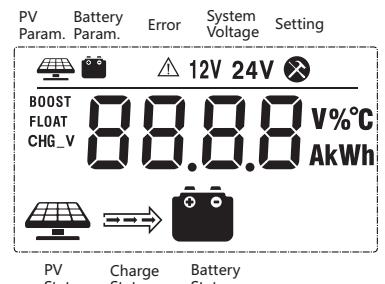


Firstly: Connect the battery first, please choose cable accordingly.
Secondly: Connect the solar panel second, please choose cable accordingly.

LCD Display Interface Overview

1) Display Overview

You can check system information in the LCD display, including PV input voltage, charge current, battery voltage, battery capacity, controller temperature, error code and battery setting pages. Here is an overall picture of the LCD display:



2) Solar (PV), Battery & Charge Indications

Status Icon	Indication	Status	Description
PV Indication	Steady ON	PV volt higher than light control volt	
	OFF	PV volt lower than light control volt	
	Slow flash ON	Charging	
	Fast flash ON	PV over voltage	
Battery Indication	Steady ON	Battery is ok	
	OFF	Battery is not ok	
Charge Indication	Fast flash ON	Battery over discharge	
	Floating	Charging	
	No float	No charge	

LCD Display Rules & Cycles

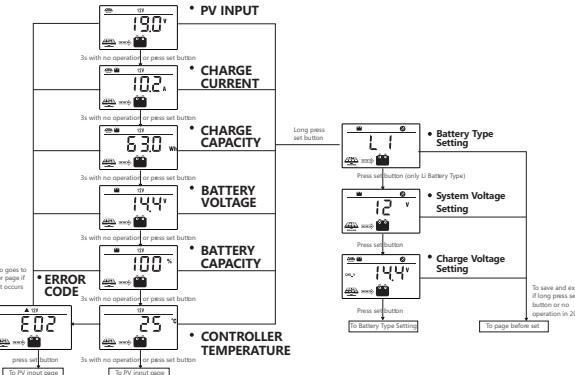
1) Button Setting Info

There are 2 buttons on the controller for operations and settings. Check the below diagram for setting details:

Function Key	System Mode	Input	Input Function
	In Setting	Long press	Enter page not for settings
		Short press	Enter next page for settings
	Not in Setting	Long press	Enter page for settings
		Short press	Enter next page not for settings
	In Setting	Long press	No function
		Short press	To adjust parameter
	Not in Setting	Long press	No function
		Short press	No function

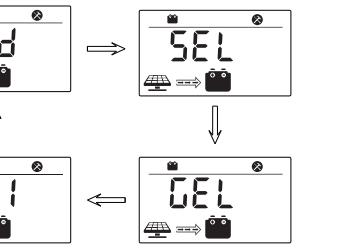
Remarks: "In Setting" means the user is in process of setting parameters.

2) Information Pages



Battery Type & Parameter Settings

1) Battery Type Setting



DISPLAY	BATTERY TYPE	REMARKS
FLD	Flooded Battery	
SEL	Sealed/AGM Battery	Battery system voltage auto recognition; parameters default set.
GEL	Gel Battery	
L1	Lithium Battery	System voltage, charge parameters adjustable.

2) Battery System Voltage Setting (only for lithium battery)



3) Charge Voltage Setting (only for lithium battery)



Error Code Chart

Due to a variety of potential issues, the controller may sometimes display an error code on the LCD screen. If this happens please refer to the below diagram:

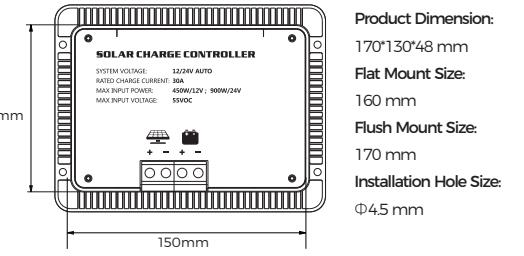
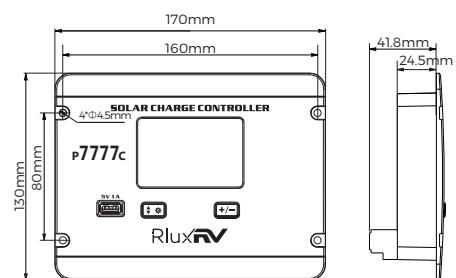
Code	Error	Description & Quick Troubleshoot
E00	No error	No action needed.
E01	Battery Over-discharged	Battery voltage is too low. DC load will be turned off until battery re-charges to recovery voltage.
E02	Battery Over-voltage	Battery voltage has exceeded controller limit. Check battery bank voltage for compatibility with controller.
E06	Overheating	Controller temperature limit. Ensure the controller is placed in a well-ventilated cool, dry place.
E08	Solar Over Amperage	Solar array amperage exceeds controller rated input amperage. Decrease the amperage of solar panels connected to the controller or upgrade to a higher rated controller.
E10	Solar Over-voltage	Solar array voltage exceeds controller rated input voltage. Decrease the voltage of solar panels connected to the controller.
E13	PV anti-connection	Solar (PV) module + polarity reverse-connection
E14	Battery anti-connection	Battery + polarity reverse-connection

* Please contact professionals for technical support on additional trouble shooting.

Controller Specification

Parameter	Value
Model No.	p7777c
Battery System Voltage	12V/24V Auto (FLD/CEL/SLD) Manual (Li)
No-load Loss	8ma (12V), 12ma (24V)
Max Solar Input Voltage	<55Voc
Rated Solar Charge Current	30A
Max Solar Input Power	450W/12V; 900W/24V
Light Control Voltage	5V(12V system); 10V(24V system)
Light Control Delay Time	10s
USB Output	5V1A
Operating Temperature	-35°C ~ +45°C
IP Protection	IP32
Net Weight	0.45 kg
Operating Altitude	≤ 3000 meters
Controller Dimension	170*130*48 mm
Parameter	Battery Parameters
Battery Types	FLD SEL GEL LI
Equalize Charge Voltage	14.8V(12V) 29.6V(24V) 14.6V(12V) 29.2V(24V) -- --
Boost Charge Voltage	14.6V(12V) 29.2V(24V) 14.4V(12V) 28.8V(24V) 14.2V(12V) 28.4V(24V) 14.2V(12V) 28.4V(24V) (adjustable)
Float Charge Voltage	13.8V(12V); 27.6V(24V) --
Boost Charge Recovery Voltage	13.2V(12V); 26.4V(24V) --
Over Discharge Recovery Volt.	12.6V (12V) / 25.2V (24V) 12.6V (12V) / 25.2V (24V) "auto adjusted to over-discharge volt."
Over Discharge Voltage	11.1V (12V) / 22.2V (24V) 11.1V (12V) / 22.2V (24V) adjustable

Product Dimensions



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.

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.

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.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

Radiation Exposure Statement

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance of 20cm from your body.